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ABSTRACT

Part 1 of a study designed to investigate the effects of individual goal-setting conferences on attitude toward reading and on reading achievement includes the introduction, review of literature, and descriptions of methods and results. Two parallel studies were conducted, the first using third and fourth graders and the second using first and second graders. Subjects were blocked by sex and previous reading achievement and assigned to three treatment groups: (1) weekly individual goal-setting conferences, (2) weekly individual conferences without goal-setting, and (3) control. All groups had the same classroom treatment. Reading achievement was tested by an experimenter-devised test and by appropriate subtests of the Wisconsin Tests of Reading Skill Development. Attitude was measured by the Primary Pupil Reading Attitude Inventory and by an experimenter-devised scale. Effects of goal setting were also measured. The results showed that pupils in group 1 set fewer goals, experienced less discrepancy between goals set and achieved, but also indicated less confidence in the ability to achieve goals. With respect to reading achievement, younger children showed significant differences on standardized and experimenter-designed measures, but older children did not. No significant differences in attitude were found. (Author/MS)

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Report No. 142 (Part 1 of Two Parts)

GOAL-SETTING BEHAVIOR, ACHIEVEMENT IN READING, AND ATTITUDE TOWARD READING ASSOCIATED WITH INDIVIDU GOAL-SETTING CONFERENCES

Report from the Project on
Situational Variables and
Efficiency of Concept Learning

Technical Report No. 142 (Part 1 of Two Parts)

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Report from the Project on
Situational Variables and
Efficiency of Concept Learning

by John Powers Gaa

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Center for Cognitive Learning
The University of Wisconsin
Madison, Wisconsin

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STATEMENT OF FOCUS

The Wisconsin Research and Development Center for Cognitive learning focuses on contributing to a better understanding of cognitive learning by children and youth and to the improvement of related educational practices. The strategy for research and development is comprehensive. It includes basic research to generate new knowledge about the conditions and processes of learning and about the processes of instruction, and the subsequent development of research-based instructional materials, many of which are designed for use by teachers and others for use by students. These materials are tested and refined in school settings. Throughout these operations behavioral scientists, curriculum experts, academic scholars, and school people interact, insuring that the results of Center activities are based soundly on knowledge of subject matter and cognitive learning and that they are applied to the improvement of educational practice.

This Technical Report is from the Situational Variables and Efficiency of Concept Learning Project in Program 1. General objectives of the Program are to generate new knowledge about concept learning and cognitive skills, to synthesize existing knowledge, and to develop educational materials suggested by the prior activities. Contributing to these Program objectives, the Concept Learning Project has the following five objectives: to identify the conditions that facilitate concept learning in the school setting and to describe their management, to develop and validate a schema for evaluating the student's level of concept understanding, to develop and validate a model of cognitive processes in concept learning, to generate knowledge concerning the semantic components of concept learning, and to identify conditions associated with motivation for school learning and to describe their management.

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ABSTRACT

This study was designed to investigate the effects of individual goal-setting conferences on attitudes toward reading and classes in reading skills, reading skill achievement, and goal-setting behavior.

Two parallel studies were conducted using students in Unit D (corresponding to Third and Fourth Grades) and Unit B (corresponding to First and Second Grades) in a Multi-Unit elementary school. Students in each Unit were placed in the experimental population if they had not previously achieved the reading skill to be studied. Ss were then blocked by sex and previous reading achievement and assigned to one of three treatment groups: individual goal-setting conferences, individual conferences, and control.

The Goal-Setting treatment group received an individual goal-setting conference once a week. They were asked to set goals for the coming week and were given feedback on the accuracy of previous goals and on their achievement in their reading skill class. The Conference treatment group received weekly individual conferences, but did not set goals for the coming week. The Control group did not receive any individual conferences but received the same in-class instruction as the other treatment groups.

Achievement level was assessed using two types of measures. In each Unit the subtest(s) of the Wisconsin Tests of Reading Skill Development (WTRSD) which was appropriate for the reading skill being studied was administered. Ss in each Unit were also given an experimenter-developed test(s) covering the same reading skill.

Three dependent measures were examined in attempting to define the effects of the goal-setting conferences on subsequent goal-setting behavior: number of goals set, absolute difference between number of goals set and number of goals achieved, and the confidence shown in their ability to attain the selected goals.

Two instruments were used in each Unit to measure the effect of the experimental treatment on attitude. The Primary Pupil Reading Attitude Inventory was used to measure attitude toward reading and an attitude scale developed by the experimenter was used to measure attitude toward the reading skills classes.

The results of the study are as follows:

1. The group that participated in the individual goal-setting conferences, in comparison with those who did not, set fewer goals, showed a smaller absolute difference between the number of goals set and number of goals attained, and also indicated less confidence in their ability to achieve the goals they had set.
2. In Unit B, there were significant differences on the WTRSD subtests between the group that participated in the individual goal-setting conferences and those who did not as well as large, but not significant, differences on the experimenter-developed measures. There were no significant differences on achievement measures in Unit D.
3. There were no significant differences between treatment groups on attitude measures in either Unit.

Chapter I

INTRODUCTION

The influence of motivation on student achievement is of primary importance in the classroom. Recent studies at the Wisconsin Research and Development Center for Cognitive Learning (Kennedy, 1968; Klausmeier, Quilling, & Wardrop, 1968; Lamal, 1969; Schwenn, Sorenson, & Bavry, 1970) have identified motivational techniques which may be used in classroom settings, and have contributed to the development and validation of a system of individually guided motivation (Klausmeier, Schwenn, & Lamal, 1970).

The purposes of the study are to develop a goal-setting technique for classroom use, and to investigate the effect of goal-setting on attitudes, and achievement, and to delineate the attributes of goal-setting. The procedures employed in the present study may also contribute to the further development of the system of individually guided motivation presented by Klausmeier, et al. The system calls for the focusing of attention, the use of positive motives, helping students to set and attain goals, providing informative feedback, providing exemplary models, providing for verbalization of prosocial values, the use of rewards and punishments as necessary, and avoiding the production of acute anxiety. The procedures investigated in this study might well be integrated into the system as a means for allowing

students to set and attain goals and as a situation in which feedback may be easily provided.

Although increasing emphasis has been placed on classroom studies during recent years, experimental evidence relating to knowledge of results (informative feedback regarding correctness of performance), goal setting, and motivation in general has traditionally been obtained in laboratory settings employing tasks not typically found in the classroom. Because of this, the application of experimental findings has been much slower than might be expected; nonetheless, they can serve as a basis for the experimental extension of motivational programs into school settings.

There can be no doubt that the setting of performance goals is a potent variable. For example, Armstrong (1947), Lockette (1956), Kausler (1959), and Fryer (1964) have conducted research relating goal-setting performance. Each investigator employed a different experimental task and age group, yet the same general conclusion was reached in each case: subjects who predict future performance scores and set goals attain a higher level of performance than that attained by those who do not set performance goals.

Traditionally, knowledge of results and goal setting have been viewed as related but essentially separate processes. Several recent studies have indicated, however, that the primary use of knowledge of results may be in its use in shaping a student's intentions in terms of performance. Locke, in a pair of studies (Locke & Bryan, 1966b; Locke, 1967) obtained results indicating that automatic improvement in performance is not obtained by giving a subject knowledge of his total score, but rather, is dependent upon how the knowledge of results is

employed in setting future goals. The emphasis is placed on the role that knowledge of results plays in goal setting rather than on any intrinsic value of supplying knowledge of results. On this basis, knowledge of results is not treated as a separate independent variable in this study, but rather is treated as a component part of the goal-setting process itself.

In developing the goal-setting procedure used in the study, three other important questions were considered: student- versus teacher-set goals, goal specificity, and goal difficulty. Studies (Bayton, 1948; Locke, 1966a) have indicated that student-set goals are superior to teacher-set goals. However, in an ongoing classroom situation the student may not be able to set appropriate goals because he is not acquainted with the subject matter to be studied. Because of this, appropriate goals were listed for the students and they then chose their own goals from the listing.

Classroom goals have usually been framed in terms of a "do your best" type of statement by the teacher without specifying performance objectives. However, several studies (Bayton, 1948; Locke & Bryan, 1966a, 1967b) have indicated that specific performance goals provide for better learning than do "do your best" goals. Therefore, the goal-setting procedure used in the study insured that the goals set related to specific performance objectives.

Experimental evidence indicates that the difficulty level of goals can play an important role in goal setting. Locke (1966a) has shown that goals must be relatively difficult in order for the goal-setting process to be effective. This would seem to indicate that although

goals should be student-set, there should be some feedback concerning appropriate difficulty level.

Method

In developing the goal-setting procedure to be used in the study the factors discussed above were taken into account. Goal-setting subjects met once a week with the experimenter. During this session, feedback was provided on the appropriateness of the previous week's goals in terms of their achievement of goals for the week as rated by the classroom teacher. Following a brief discussion of the material to be studied during the coming week the students were asked to set performance goals. A range of possible goals was presented to each student in the form of a goal-setting check list. This check list was developed in conjunction with the classroom teachers and was based on their estimation of the types of behaviors which would be indicative of a growing mastery of a specific reading skill being taught. By presenting the goals in this manner they were student-set in the sense that they were "student chosen," while at the same time were both specific and appropriate to the reading skill. Students in the goal-setting treatment group received four such conferences during the study.

Schwenn, Sorenson, and Bavry (1970) demonstrated a positive effect of individual reading conferences on the amount of independent reading of elementary school children. In the present study, this type of social interaction is present as an implicit part of the goal-setting conferences. This would present a problem in interpreting positive results since it would be unclear whether the treatment effect was due to the goal-setting procedures or simply the result of the individual

conference per se. To allow for a clearer interpretation of the data and to judge the effect of the conference alone in this type of procedure, a second treatment group was established. The conference group received individual conferences with the experimenter on the same schedule as the goal-setting treatment group. The conferences differed, however, in that students did not set specific performance goals. During the conference the topics which would be studied in class were briefly discussed and general class goals were pointed out by the experimenter.

The third group in the study was a control group. This group received the same classroom instruction as the other two groups, but received no conferences of any kind.

Subjects

Subjects were students in Units B and D of an elementary school which is organized following the Multi-Unit concept. Students in Unit D would normally be in the third and fourth grades, while students in Unit B would normally be in the first and second grades. Fifty-four students participated within each unit with the sexes equally represented.

Within each unit students who had not previously mastered the reading skill to be studied were divided by sex and then blocked on the basis of previous reading skill achievement into three reading achievement groups. In the Multi-Unit framework, students are not restricted to a single classroom, but are grouped by ability and competence for the various classes so that students may have different teachers and classmates throughout the day. With this type of organization in use, students could be assigned to the three treatment groups on the basis

of a stratified random assignment procedure across classrooms. Students were then assigned to reading-skill teachers using a stratified random assignment procedure such that each teacher had one student from each of the cells in the experimental design. Teachers were not told which treatment groups students were assigned to.

Evaluation Procedures

Evaluation procedures were divided into two parts which reflected the questions asked in the study. The first general question to be answered concerned the effect of the goal-setting procedure on the attitudes and achievement levels of the students. Two attitude measures were administered to all subjects: the first was a measure of general reading attitude and the second was a measure of attitude toward the specific reading skill being studied. In each of the Unit levels both experimenter-developed and criterion-referenced achievement tests were given. The criterion-referenced tests were developed by reading and measurement experts of the Wisconsin Research and Development Center for Cognitive Learning and dealt with the specific skills studied during the experimental period.

The second of the two general questions the study seeks to answer is more theoretical in that it attempts to describe more accurately the goal-setting process. The question relates to the effects of practice in goal-setting on the number and accuracy of goals set and on the degree of confidence that subjects show in attaining them. Following the administration of the attitude and achievement measures, all students in the three treatment groups participated in an individual goal-setting conference. The results of this conference, along

with teacher ratings, were used to compare the effect of the treatments on the goal-setting behavior of the groups.

Experimental Design

The experimental design was a 3x3x2 randomized block design with three treatments, three levels of previous achievement, and two sexes. The design was replicated at the two unit levels (B and D).

Separate multivariate analyses of variance were conducted incorporating appropriate subsets of the following dependent measures: (a) scores on the reading attitude inventory, (b) scores on the skill attitude inventory, (c) scores on the experimenter-developed achievement tests, (d) scores on the appropriate subtests of the criterion-referenced achievement test, (e) the number of goals set, (f) the accuracy of the goals set (the absolute value of the difference between the number of goals set and the number of goals achieved) and (g) the score for confidence in achieving the goals set.

Significance of the Study

This study is designed to examine the effectiveness of a goal-setting procedure which seeks to improve student achievement and attitudes. In addition, it seeks to delineate precisely the effect of practice in goal-setting on the number and accuracy of goals set and the confidence subjects show in attaining them. It also attempts to separate any experimental effects into components based on the effect of a conference alone and on the effect of a conference in which goal-setting was carried out.

The significance of the study lies in examining the external conditions that can be successfully employed in classroom goal-setting

and in delineating more precisely the attributes of goal-setting *per se*. If the procedures, or external conditions, implemented in the study are effective, they can be employed by classroom teachers as an important motivational technique to improve student achievement. Further, if the external conditions are manipulated successfully, the attributes of goal-setting that are identified may contribute to more general knowledge about goal setting that can be used in other school and non-school situations.

Chapter II

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to provide an overview of research on goal-setting and the use of goals. Primary emphasis has been placed on the influence of outside factors on the goal-setting process. This is due for the most part to the lack of studies relating to the application of goal-setting to classroom situations and to the consideration of three factors in the design of the goal-setting procedures employed in the present study. Aspects to be considered include the use of conferences in goal-setting, knowledge of results, specificity versus generality of goals, difficulty level of goals, who sets the goals, and interests and attitudes.

Teacher-Child Conferences

Although the use of goals and goal-setting conferences as motivation techniques have been informally used by teachers on an individual basis, there have been few experimental studies conducted to systematically examine the effects of such procedures. However, there can be little doubt that the setting of performance goals is a potent variable. For example, Armstrong (1947), Bayton (1948), Fryer (1964), Kausler (1959), and Lockette (1956) all conducted research which related goal-setting and performance. Although each investigator employed a different experimental task and age group, the same general conclusion was reached

by each: subjects who predict future performance scores and set goals attain a higher level of performance than that attained by those who do not set performance goals.

Two related studies conducted at the Wisconsin Research and Development Center for Cognitive Learning have focused on the effect of individual conferences on achievement. Because individual goal-setting conferences were employed in the present study, possible effects of the conference alone must be considered. In a teacher conducted classroom study (Klausmeier, Quilling, & Wardrop, 1968) students met weekly for individual conferences with their arithmetic teachers. During the conference the individual student's progress was informally assessed and praise and encouragement was given by the teacher. Both the experimental group and a control group (who received no conferences) were provided with individual folders listing arithmetic concepts and skills in the form of behavioral objectives. As objectives were attained they were recorded in the folder and when a listed concept or skill was attained the square corresponding to it was colored in. A comparison of the achievements of the experimental and control groups indicated that the conference group performed significantly better than the nonconference group.

The effect of the use of individual conferences in relation to reading ability was examined by Sorenson, Schwenn, and Klausmeier (1969). Students in the second, fourth, and sixth grades were grouped on the basis of the amount of independent reading they displayed during a baseline period. Those in the upper third were excluded from the study because it was felt that they were performing adequately in their regular program; the remainder of the students were randomly assigned

to either the experimental or control group. The treatment group received no conferences. During the conferences the student discussed books he was reading and read aloud for the teacher. This procedure enabled the teacher to provide feedback on reading performance and to reinforce positive attitudes towards reading. The conference lasted approximately 10 minutes and was conducted by either a classroom teacher or a teacher aide. The results of the study indicated that the students who received individual conferences significantly increased the level of their independent reading in relation to the control group.

The conference technique described above was modified and extended by Kennedy (1968) to include goal-setting procedures and more direct feedback. Students were assigned to one of four groups, with subjects in the first three groups receiving conferences. Subjects in the first group were simply told to "do their best;" members of the second group were instructed to state how many squares in their checklist folder they would try to fill in during the coming week; students in the third group were given specific goals by the teacher; and students in the fourth group received no conferences. The results of the study indicated that: (1) the conference groups performed better than the nonconference group, (2) students with specific goals acquired more concepts than students with general goals, and (3) achievement level and attitude towards tasks were related. The study is one of the few which has been carried out in the classroom with ongoing, long-term learning. Although the conference technique used in the two earlier studies was expanded to include goal-setting, no attempt was made to ascertain the effect of the goal-setting procedures themselves as opposed to the effect of the conferences.

Another study which sought to assess the effect of goal-setting on performance over a relatively long time span was reported by Locke and Bryan (1968b). The study is one of the few done in school settings with ongoing learning. Grade point averages were used as the dependent measure with college students serving as subjects. (Although the studies reported earlier all used elementary school students as subjects, the use of college students is the usual practice, presumably because of their availability and the ease with which they grasp directions.) The students were asked to make four different grade point ratings (hope, expect, minimally satisfactory, and actually try for) for each of four grade criteria (history, easiest and hardest course, and G.P.A.). When the goal ratings were analyzed in relation to performance on the four grade criteria, it was found that the goal ratings correlated significantly with attained grades, and that all but one correlation remained significant when the group was blocked on the basis of sex and scholastic ability. Locke and Bryan point out that their findings that trying for hard (high) goals resulted in more frequent failure to reach the goals but a higher level of achievement than trying for the easier (lower) goals replicates the findings of earlier studies done in a short term situation. Here again, however, the effect of the goal-setting itself cannot be evaluated directly since no control group was used. At best, statements can be made concerning types of goal setting in relation to one another, but not about the effects of the goal-setting when compared with the normal classroom procedures.

The three studies by Klausmeier, Quilling, and Wardrop (1968); Sorenson, Schwenn, and Klausmeier (1969); and Kennedy (1968) indicate

the importance of the use of an individual conference procedure in which principles of motivation are systematically implemented. The Kennedy study sought to extend the conference technique by the inclusion of goal-setting procedures; however, since no provision was made for discriminating between effects of the individual conference and effects of the goal-setting procedures, meaningful judgments cannot be made concerning the relative effectiveness of the two techniques. In order to judge whether the inclusion of the goal-setting increases achievement levels, provision must be made for the comparison of effects due to each source. In the present study this was accomplished by the including both goal-setting and conference treatment groups in the study. By comparing performance levels of the goal-setting and non-goal-setting groups and the conference and control groups it was possible to judge the effects of the goal-setting procedure relative to the effects of the individual conference.

Knowledge of Results

Although the use of knowledge of results in any type of a goal-setting situation is readily apparent, research concerning knowledge of results has tended to center on its direct effect of performance. Several recent studies have indicated however, that its effect may be primarily directed towards the shaping of an individual's goals, which in turn effect performance.

Fryer (1964) noted that goal-setting seemed to be more efficient than knowledge of results in increasing performance. He found that having subjects set performance goals before each trial led to a higher learning rate on a Morse Code task than simply giving the subject

knowledge of his score after each trial. However, a re-interpretation of the data by Locke (1966a) indicated that this finding was a function of the level of the goals set, rather than simply reflecting a differential effect of goal-setting and knowledge of results. The re-analysis showed that those subjects who set high goals did better than the knowledge of results group, while those with low goals did worse.

The re-interpretation of Fryer's data supported the earlier statements of Ammons (1961) and Bilodeau and Bilodeau (1961) who both pointed out that few theoretical principles would serve as a basis for prediction of improved performance using knowledge of results. With this as a basis, Locke began a series of studies (Locke, 1967; Locke & Bryan, 1966b, 1967a, 1968a, 1969a, 1969b, 1969c; and Locke, Cartledge, & Koeppel, 1968) designed to investigate the relationship between goal-setting and knowledge of results. In his studies Locke used college students as subjects in short-term experiments and usually employed tasks involving simple arithmetic computations. A 2x2 design was typically employed with knowledge of results - no knowledge on one dimension. The findings, which were consistent across studies, indicate that providing knowledge of results does not result in an automatic gain in performance, and that it is the type, and level, of performance goals that are set using the knowledge of results which is important. The data presented by Locke indicates then that, although knowledge of results directly effects behaviors such as driving a car or reading a page, some effects previously attributed to differential knowledge of results are actually due to differential levels of motivation produced by various types, and levels of goals as influenced by the knowledge of results.

Porat and Haas (1969) in reporting the results of an experiment dealing with the effects of initial information and feedback on goal-setting and performance noted that more information (knowledge of results) resulted in more accurate levels of goal setting and decision making. This would seem to support Locke's contention that the primary role of knowledge of results is in influencing the goal-setting process. The emphasis is placed on the role that knowledge of results plays in goal setting rather than on any intrinsic value of supplying knowledge of results.

Although the view of knowledge of results as an aspect of goal setting is becoming more prominent, it is not new. As early as 1935 Mace interpreted performance fluctuations which varied with knowledge of results as resulting from the implied standard (goal) which was suggested.

The view of knowledge of results taken in the present study is based on the studies discussed above: feedback concerning achievement of previous goals (knowledge of results) functions as an integral part of the goal-setting process and is not treated as a separate independent variable in this study.

Specificity of Goals

A second aspect which must be considered in the development and use of any goal-setting procedure is the degree of specificity of the goals. Typically, two types of goals are used by classroom teachers. The first is the "do your best" type and is probably by far the most commonly used. The teacher simply tells the student to "do your best," leaving the individual free to interpret the goal in any manner he

chooses. The second type of goal direction involves specific, quantitative goals.

Mace (1935) reported in an early study that a moving standard (goal) which was based on previous performance was more effective in increasing achievement than instructions to students to "do your best." This technique of comparing "do your best" goals with other types of goals served as the basis for more recent studies. Bayton (1948) found that although goals increased the achievement level of students as they became more specific the level of performance increased further. It should also be pointed out that the idea of specifying goals is inherent in the consideration of teaching techniques. For example, Harrison (1967) suggests that allowing learners to know what the teacher expects of them will enable them to achieve these intentions more efficiently.

In a series of studies (Bryan & Locke, 1967; Locke, 1967; Locke & Bryan, 1967a, 1967b) Locke and Bryan investigated the question of the effect of specific goals versus the effect of "do your best" goals on achievement. In each case, the results indicated that specific goals yielded superior performance levels when compared with the "do your best" goals. In one of the studies (Locke, 1967b), low motivation and and high motivation groups were selected on the basis of differences in performance in relation to ability and differences in attitude ratings on a given task and were later retested on the task.

Low motivation subjects were given specific goals to reach while the high motivation subjects were told to "do your best." By the end of the second retest, the low motivation group with the specific goals

had "caught" the high motivation group in relation to both level of performance and attitude towards the task. The results obviously suggest the potency of specific goals in increasing motivation.

Based on the results of the studies described above, the goal-setting procedure employed in the present study permitted only specific goal choices. Goal-Setting Check Lists were developed based on the suggestions of classroom teachers as to what specific behaviors reflected various levels of mastery of each of a number of reading skills.

Difficulty of Goals

Closely related to the question of the specificity of goals is the question of the maximal level of goal difficulty. As was discussed earlier, Locke's (1966a) reanalysis of Fryer's (1964) data indicated that the performance of students who set high goals was superior to the performance of both those who received knowledge of results only and those who set goals. These results would seem to indicate that in any goal-setting procedure feedback should be provided to insure an adequately high difficulty level of the goals set.

In a number of studies (Bryan & Locke, 1967; Locke, 1967; Locke & Bryan, 1966b, 1967a, 1968b), most of which also examined the question of specificity, the problem of difficult versus easy goals was examined. The results of all of the experiments support the conclusions reached in the reanalysis of Fryer's data: the harder the goal, the higher the performance level. Of course, if goals are so difficult that they are almost never attained, performance may well decrease with the lack of positive reinforcement. However, none of the above studies were carried

out in an ongoing classroom situation, and all were short-term tasks where appropriate goals were apparent to the subject.

In a study such as the present one, the use of extremely difficult goals might result in a failure rate high enough to discourage rather than encourage the students. With the use of the Goal-Setting Check Lists mentioned above, the student is presented with a difficulty choice in relation to each specific goal. Teacher feedback can then be utilized to insure that an appropriately hard difficulty level is set.

Originator of Goals

The question of who sets a specific goal in a goal-setting situation is something which might be overlooked, but which is crucial. The early work by Mace (1935) focused on the specificity of goals, but in addition compared self-set with experimenter-set goals. His results indicate that self-set goals were superior to experimenter-set goals in terms of performance level.

Locke (1966a) assigned subjects to three groups, two of which received experimenter-set goals. He found that those subjects who set their own goals performed better than those subjects who received "easy" fixed goals, but less well than those receiving "difficult" fixed goals.

Locke, Bryan, and Kendall (1968) in summarizing five related studies again pointed out that self-set goals were superior to experimenter-assigned goals, but only if the goals set by subjects are of appropriate difficulty and specificity.

In preparing goal-setting procedures for the present study the question of who should set the goal (teacher or student) became a very

real problem. In the studies above the subject was aware, because of the simple nature of the tasks, of what constituted an appropriate response. The problem in this case is to insure that the goal is specific and fairly difficult. In a classroom setting, and especially at the elementary school level, the student is most often not aware of what constitutes an appropriate goal. The problem then is for the teacher to indicate what appropriate goals might be, to provide information about the difficulty of the possible goals, and to encourage the student to select his own goal from among the possibilities provided. The procedure used in the present study required the student to select his own goals from a goal-setting check list which was provided. This required the student to set his own goals from among those on the list provided, and at the same time insured that explicitly stated goals would be selected.

Attitudes

The relationship of attitude and goal setting was examined in a series of studies by Bryan and Locke, 1967; Locke, 1965, 1966b; Locke and Bryan, 1967a, 1967b. The results indicated that the effect of goal-setting on the attitude of a subject towards a given task is not constant, but rather is dependent on other variables. For example, hard goals produce less overall task liking and satisfaction than do easy goals, yet hard goals produce a higher level of achievement (Locke, 1965). This seems to provide a partial explanation for the contention of Bayfield and Crockett (1955) that attitude and performance are not necessarily correlated. Locke (1967) found that specific goals produce more interest in a task than "do your best" goals. This finding seems

to support the anecdotal evidence of Wyatt, etal (1934) and Roy (in Whyte, 1955) that setting specific goals can function to relieve boredom and increase interest.

The literature reviewed in this chapter has related to the various aspects of developing a goal-setting procedure for use in the classroom. The vast majority of the studies cited have been short-term laboratory studies using simple, and often artificial, tasks which may bear little relationship to the type of learning problems encountered in schools. This has not been by choice, but rather it is due to the type of goal-setting experiments carried out in the past. For the most part, prior experiments have concentrated on examining factors influencing goal setting rather than attempting to examine its use in ongoing situations. The present study is an attempt to apply research findings to the development and implementation of a goal-setting procedure and to examine its effect on attitude, achievement, and goal-setting behavior.

Chapter III

METHOD

Subjects

The subjects in this study were students from Unit D (equivalent to usual third and fourth graders) and students from Unit B (equivalent to usual first and second graders) at Wilson Elementary School which is in a low socioeconomic area of Janesville, Wisconsin. Within each Unit an equal number of males and females were originally included in the study; however, during the course of the study, two students of the 54 in Unit D and three students of the 54 in Unit B were lost due to absences. Thus 25 males and 27 females in Unit D and 24 males and 27 females in Unit B remained in the study. Only those students who had not previously mastered the reading skill to be studied in the Unit were included in the population. It was from this population that the experimental sample was drawn. Students who had mastered the reading skill were assigned to reading skill groups in areas not previously mastered; this follows the normal assignment policy of the Units involved.

Materials

Goal-Setting Check Lists

During goal-setting conferences, Ss were asked to check goals related to objectives reflecting attainment of subskills in the particular reading skill being studied.

The check lists were developed in conjunction with the teachers in the Units which participated in the study and were specific to the material covered by each Unit. Initially a reading skill, or skill constellation, was identified which constituted the material to be studied during the experiment. The teachers were then asked to delineate behaviors which would be indicative of various levels of achievement of the skill. In other words, they were asked: What do you expect students to be able to do to show that they have learned a given skill? Once these behaviors were identified, they were re-written in language appropriate for elementary age students and ranked in approximate order of difficulty by Unit teachers and E. After additional review by the teachers, they were placed in a goal-setting format which required the Ss to check the behavior, or skill, they intended to attain and also to check the degree to which they would attempt to master it. The latter was done by requiring the S to indicate whether he would be able to show the behavior once in a while, most of the time, or almost always. Although the three choices are not quantitatively exact, Ss in the study were able to discriminate between them. Goal-Setting Check Lists for Units D and B appear in Appendix A.

Goal Reminder Sheets

At the conclusion of each goal-setting conference, each S was given a Goal Reminder Sheet which was identical, except for heading, to the Goal-Setting Check List. The goals the S had checked were marked by E on the sheet, which was then given to the S with the instructions that he was to use it to remind him of what he had decided to work on during the week. Goal Reminder Sheets for Units D and B appear in Appendix B.

Check List for Teacher Evaluation of Goals Attained

At the end of each week of the study, the teachers were asked to rate all the students in their class on the basis of the number of goals attained. In order to do this, they were provided with copies of the Teacher Evaluation Check List. This check list consisted of a list of the same goals as in the Goal-Setting Check List, with a heading instructing the teacher to check those behaviors that the student could perform at that given time. These ratings were used to provide feedback to the goal-setting Ss in terms of the accuracy of their goals and in terms of their level of achievement. Ratings made at the end of the fourth week served as the basis for the comparison of the goal-setting accuracy of three treatment groups. Teacher Evaluation Check Lists for Units D and B appear in Appendix C.

Goal-Setting Confidence Rating Scale

During each goal-setting conference Ss were asked to rate their expected confidence and competence in relation to the goals set for the coming week. Ss were asked to check the response they felt was appropriate for two questions:

1. How certain are you that you will be able to reach the goals you set?
2. How well will you be able to perform the skills?

These rating scales provided the basis for some feedback during goal-setting sessions and served to compare the three treatment groups in terms of feelings of expected confidence and competence. The scales used were the same for both Units. Self-Rating Scales are in Appendix D.

Achievement Tests

Two distinct types of achievement tests were employed in the study. At each unit level (D and B) the appropriate subtest of the Wisconsin Tests of Reading Skill Development (WTRSD) Battery was used. This battery was developed at the Wisconsin Research and Development Center for Cognitive Learning and is designed for use with the reading skills program being used at the experimental school. For Unit D, the level C Synonym and Antonym test was used; while for Unit B, levels B and C Base Words test and level B Compound Words test were used. Subtests of the WTRSD Battery used for both Units appear in Appendix E.

The second type of test employed was the experimenter-developed test. Because the WTRSD tests were designed to measure comprehension only, this test was designed to measure application. For Unit D a synonym and antonym test was developed, and for Unit B base words and endings and compound words tests were developed. Since these tests were not professionally developed, and since the classroom teachers were emphasizing comprehension skills, the experimenter-developed tests were analyzed separately from the WTRSD subtests. Copies of Experimenter-Developed Tests for both Units appear in Appendix F.

Attitude Measures

Two attitude measures were employed in each Unit level of the study. The Primary Pupil Reading Attitude Inventory (Askov, 1970) was used to evaluate S's attitude toward reading in general. The inventory presents a series of pictures showing children engaging in various behaviors and asks S to mark which behavior he prefers. By counting the number of times a reading behavior has been selected, a reading attitude score can be calculated.

The second attitude measure was more specific, and dealt with S's attitude toward the reading skill class itself. The measure was in the form of a questionnaire and asked Ss to rate the class in terms of enjoyment, interest, and amount learned. The same measure was used for both Units. The reading skill attitude measure appears in Appendix G.

Treatment

Three treatment groups were employed in the study: goal-setting, conference, and control. All students in the study received the same initial introduction to the material to be studied in the reading skills class. At this time, the E was introduced as an aide who would be helping the teachers with the reading skills class.

Classroom instruction in both Units followed The Wisconsin Design for Reading Skill Development which was developed by the Wisconsin Research and Development Center for Cognitive Learning. The design identifies reading skills which are essential in K-6 and includes assessment exercises for each skill. It provides for assessment of instruction, record keeping and grouping procedures, and suggests skill oriented materials and activities. The design is intended to help teachers decide what to teach, feel more confident as diagonostians, discover and teach to individual needs, form instructional groups easily and often, and find effective ways to teach each skill. Instruction is organized around six general skill areas which incorporate the specific reading skills: Word Attack, Comprehension, Study Skills, Self Directed Reading, Interpretive Skills, and Creative Skills.

To insure that students were allowed to progress as far as possible, teachers involved in the study were instructed that students were to be

allowed to advance as quickly as they could in order that they might have the opportunity to achieve the goals they selected. Classroom instruction was observed intermittently to insure that teachers followed these directions. With the exception of the above stipulation, teachers were allowed to follow their normal teaching procedures. Teachers were not told, however, to which experimental group students had been assigned.

Goal-Setting Group

Subjects in the goal-setting group received weekly individual conferences. During the initial conference S was given an explanation of the meaning of goal setting and how it related to the reading skills class. The material to be covered during the week was briefly outlined and the Goal-Setting Check List was explained in this context. E then read the Goal-Setting Check List to S to insure that differences in reading ability were mitigated, and asked S to check which goals he would try to accomplish during the coming week. S was allowed to set his goals for the coming week with no guidance or feedback by E. After the check list was completed S was asked to rate his confidence in relation to the goals he had set. Again, the rating scales were read to S to insure that differences in reading ability were mitigated. As before E provided no guidance or feedback when the ratings were made.

At the end of each week the classroom teachers were given copies of the Teacher Check List for Evaluation of Goals Attained containing a list of the same behaviors as the student Goal-Setting Check List. The teachers were asked to rate all students in their classes so that these ratings could not serve as a basis for the teacher identifying experimental Ss.

On Monday of the second week, the goal-setting group received a second individual conference. This conference differed from the initial one in that in addition to the procedure described above, students received feedback on, and reinforcement for, their performance of the previous week. During the individual conference E and S compared the goals set by S for the previous week with his teacher's ratings of his achievement. This allowed the student to receive feedback on the appropriateness and accuracy of the goals he set during the previous week and on his general achievement level. E also asked several questions concerning the material of the previous week in order to provide the opportunity for further feedback reinforcement. The remainder of the conference proceeded in the same manner as the initial conference with the exception that the introductory explanation of goal setting was deleted.

The third conference for the goal-setting group followed the procedure established for the second conference: feedback on appropriateness and accuracy of goals, discussion of the previous week's material, reinforcement for material learned, discussion of the material for the coming week, goal setting, and confidence rating.

Achievement tests and attitude measures were administered to all students on Friday of the third week. Ss in all treatment groups were administered the tests and attitude measures at the same time.

On Monday of the fourth week all Ss in the study were given an individual goal-setting conference. The conference procedure for the goal-setting group followed the procedure established during the initial session and described above.

Conference Group

Students in the conference group received individual conferences on a schedule identical to that of the goal-setting group. During these conferences Ss did not set specific goals and therefore did not receive feedback concerning their performance in relation to these goals. The E pointed out general classroom goals and discussed with the S the material which was covered during the previous week and the material to be covered during the coming week. This procedure allowed the E to ask questions concerning the previous week's work and to provide feedback and reinforcement in relation to material learned.

The purpose of the conference group was to help identify any treatment effect which might be due to the social interaction of the individual conferences rather than the goal-setting procedures. Any "Hawthorne effect" which might be influencing results in the present study is partially controlled for by the presence of the conference group. For these reasons, every attempt was made to insure that the individual conferences for these two treatment groups were as similar as possible with the exception of the goal-setting procedure.

Achievement tests and attitude measures were administered to all students on Friday of the third week. Ss in all treatment groups were administered the tests and attitude measures at the same time.

On Monday of the fourth week of the study, the conference group received a goal-setting conference. The procedure followed was the same as was outlined for the initial goal-setting conference of the goal-setting treatment group.

Control Group

The control group consisted of students who did not receive any individual conferences during the first three weeks of the study. These Ss received the same classroom instruction as the goal-setting and conference Ss and were administered the same achievement tests and attitude measures. On Monday of the fourth week, the control groups received a goal-setting conference. The procedure followed was the same as was outlined for the initial goal-setting conference of the goal-setting treatment group.

This treatment group served as a basis for comparison for the conference and goal-setting groups in order to isolate any experimental effect due to the individual conference and goal-setting procedures. Schedules for all treatment groups appear in Table 1.

Design

The experimental design was a 3x3x2 randomized block design with three treatment groups (goal-setting, conference, and control), three levels of previous reading achievement (high, medium, and low) and two sexes. The experimental design is shown in Table 2.

The previous achievement factor was based on scores for the Word Study Skills Test of the Stanford Achievement Battery for Ss in Unit D, and on the California Reading Test for Unit B. Scores were ranked within sex and divided into high, medium, and low thirds.

Treatment groups were assigned on the basis of a stratified random sampling procedure. Ss were blocked by previous achievement and by sex and then assigned to treatment groups. Ss were assigned to teachers randomly within each cell of the design such that each teacher had one

TABLE 1

Schedules for Treatment Groups

Day	Treatment Group		
	Goal Setting	Conference	Control
Section I			
Week 1: Monday	Initial introduction Goal-setting conference	Initial introduction Individual conference	Initial introduction
Week 2: Monday	Feedback and goal-setting conference	Individual conference	
Week 3: Monday	Feedback and goal-setting conference	Individual conference	
Week 3: Friday	Achievement and attitude tests	Achievement and attitude tests	Achievement and attitude tests
Section II			
Week 1: Monday	Goal-setting conference	Goal-setting conference	Goal-setting conference
Week 1: Friday	Evaluation of the week 1 goals	Evaluation of the week 1 goals	Evaluation of the week 1 goals

TABLE 2

Experimental Design of Proposed Experiment

Stratifying Variables			Independent Variable		
Age-Grade Unit Level	Sex	Word Study Skills Achievement	Conference & Goal-setting	Conference No goal-setting	No Conference No goal-setting
B	Male	High			
		Medium			
		Low			
	Female	High			
		Medium			
		Low			
D	Male	High			
		Medium			
		Low			
	Female	High			
		Medium			
		Low			

student from each cell. The conference schedule for subjects in the goal-setting and conference treatment groups was such that no S was taken out of a class being taught by his reading skills teacher and no more than two Ss from the same treatment group received conferences consecutively.

Since different reading skills were studied by each Unit, analysis of data in this study was conducted separately within Unit D and Unit B.

Hypotheses Tested

The study sought to answer the following questions:

A. With respect to attitude:

1. What is the effect of goal-setting conferences on classroom attitudes?

   a. Does the goal-setting group differ from the two non-goal-setting (conference and control) groups in attitude toward reading and reading skills?

   b. Does the conference group differ from the control group in attitude toward reading and reading skills?

2. What is the relationship between attitude and sex and/or previous achievement level?

B. With respect to achievement:

1. What is the effect of goal-setting conferences on reading skills achievement?

   a. Does the goal-setting group differ from the two non-goal-setting (conference and control) groups in achievement?

b. Does the conference group differ from the control group in achievement?

2. What is the relationship between achievement and sex and/or previous achievement level?

C. With respect to the number and accuracy (the absolute difference between the number of goals set and number of goals attained) of goals, and confidence (anticipated competence level) in attaining the goals set:

1. What is the effect of the goal-setting conferences on the accuracy, number, and confidence of goals set?

a. Does the goal-setting group differ from the two non-goal-setting (conference and control) groups?

b. Does the conference group differ from the control group?

2. What is the relationship between number, accuracy, and confidence in goals set, as a function of sex and/or previous achievement level?

With respect to the questions above, the following relationships were expected.

1. The goal-setting treatment will have a significantly more positive attitude towards reading and reading skills than the non-goal-setting treatment groups.

2. The conference and control treatment groups will not differ significantly in attitude towards reading and reading skills.

3. The goal-setting treatment group will have significantly higher achievement level than the non-goal-setting treatment groups.

4. The conference and control treatment groups will not differ significantly in achievement.
5. The goal-setting and non-goal-setting treatment groups will differ significantly in goal-setting behavior.
6. The conference and control groups will not differ significantly in goal-setting behavior.

Chapter IV

RESULTS

Separate multivariate and univariate analyses of variance were carried out in both Units on the appropriate following dependent measures: (a) scores on the Primary Pupil Reading Attitude Inventory, (b) scores on the Reading Skill Attitude Inventory, (c) scores on the subtests of the WTRSD Battery, (d) scores on the experimenter-developed achievement tests for each Unit, (e) the mean number of goals set, (f) the absolute difference between the number of goals set and the number of goals achieved, and (g) the ratings of confidence in ability to achieve the goals which were set. The analyses were conducted within Units D and B separately, with students blocked on sex and previous reading achievement within each Unit.

Because of unequal cell frequencies, it was necessary to test each source of variance after removing the effects attributable to other sources. Each main (or nested) effect (treatment, sex, and previous achievement) was tested after having removed the variance attributable to the other two. The treatment by sex and treatment by previous achievement within sex interactions were tested with all other between groups effects eliminated. The significance level adopted for all tests was .05.

Attitude Measures

A multivariate analysis of variance was carried out using scores

on the Primary Pupil Reading Attitude Inventory and scores on the Reading Skill Attitude Inventory as dependent variables. Results of this analysis appear in Table 3.

An examination of Table 3 indicates that there were no significant differences in attitude as a main effect of treatment. Neither goal-setting versus non-goal-setting nor conference versus control comparisons reached the .05 level of significance. However, when the means for each treatment group are plotted as in Figure 1 (higher scores reflecting a more positive attitude), it can be seen that although the differences were not significant, the means were in the predicted direction. The mean of the goal-setting group was higher than that of either the conference or control groups on the Skill Group Attitude Inventory and higher than the average of the conference and control groups on the Primary Pupil Reading Attitude Inventory.

Although the difference in attitude by sex was not statistically significant ($p < .06$) at the .05 significance level adopted, the difference was quite large and seemingly played an important part in the significant ($p < .05$) interaction of treatment and sex. To clarify the nature of this interaction, the means and standard deviations for each attitude measure by treatment group and sex are presented in Table 4, and shown in Figure 2. This interaction would limit possible main effects in relation to attitude.

No significant results were found when comparisons of attitude by previous achievement were made, or when comparisons of attitude by treatment and previous achievement by sex were run. The means and standard deviations for each attitude measure by treatment group and by previous level of reading achievement are presented in Table 5.

TABLE 3

Multivariate Analysis of Variance of Scores
on Attitude Measures for Unit D

Source	df	F	p <
Treatment			
Goal-Setting (G) vs. Non-Goal-Setting ($\bar{G}$)	2, 33	<1	.4743
Conference (C) vs. Control ($\bar{C}$)	2, 33	1.0037	.3775
Sex	2, 33	2.9985	.0647
Treatment by Sex			
G vs. $\bar{G}$	2, 33	4.7118	.0159*
C vs. $\bar{C}$	2, 33	1.5596	.2254
Previous Achievement Level within Sex	8, 66	<1	.5916
Treatment by Achievement within Sex			
Treatment by Achievement within Males			
G vs. $\bar{G}$	4, 66	<1	.7776
C vs. $\bar{C}$	4, 66	1.7757	.1443
Treatment by Achievement within Females			
G vs. $\bar{G}$	4, 66	<1	.4574
C vs. $\bar{C}$	4, 66	<1	.8881

* Significant at the .05 level

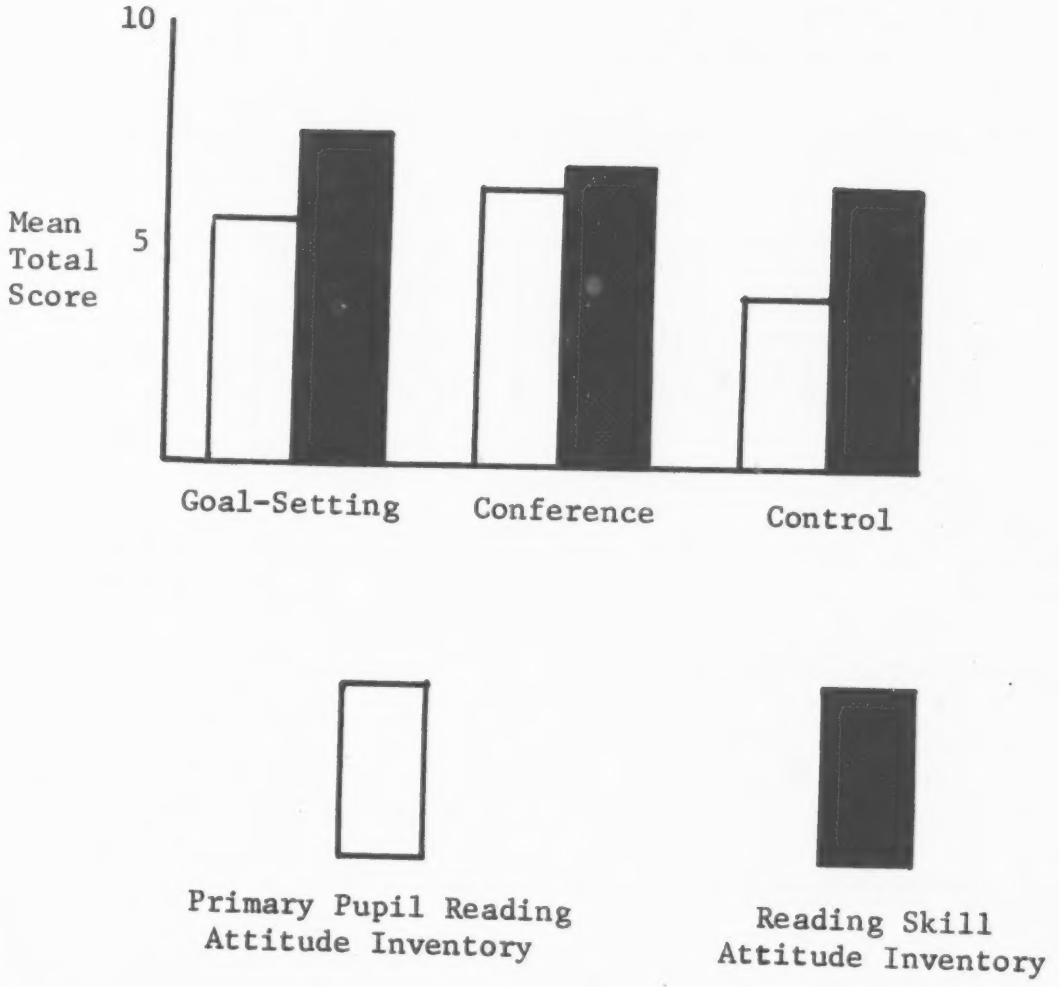

Figure 1. Mean scores on the Primary Pupil Reading Attitude Inventory and on the Reading Skill Attitude Inventory by treatment group for Unit D

TABLE 4

Mean Scores on the Primary Pupil Reading Attitude Inventory
and on the Reading Skill Attitude Inventory
by Treatment Group and by Sex for Unit D

Sex	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
Male								
Reading Attitude	2.143	2.545	7.111	6.333	2.556	5.833	4.080	5.634
Skill Attitude	7.857	1.215	6.111	3.480	4.778	2.386	6.120	2.804
	N7		N9		N9		N25	
Female								
Reading Attitude	8.333	5.679	5.333	2.291	5.333	3.354	6.33	4.132
Skill Attitude	7.222	2.224	7.222	1.787	7.889	1.692	7.44	1.867
	N9		N9		N9		N27	
All								
Reading Attitude	5.625	5.464	6.222	4.710	3.944	4.832	5.250	4.994
Skill Attitude	7.500	1.826	6.667	2.744	6.333	2.567	6.808	2.434
	N16		N18		N18		N52	

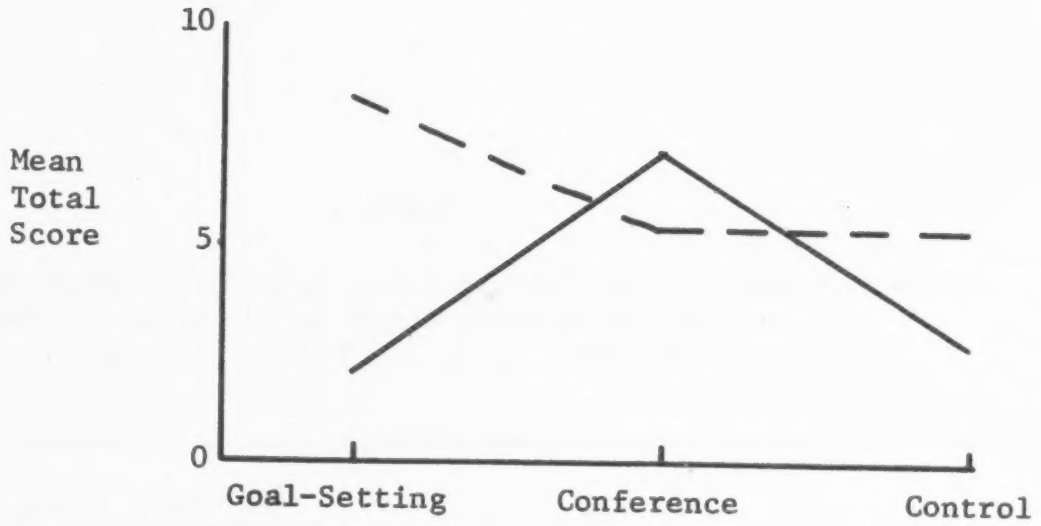

Figure 2. Mean scores on the Primary Pupil Reading Attitude Inventory and on the Reading Skill Attitude Inventory by treatment group and by sex for Unit D

TABLE 5

Mean Scores on the Primary Pupil Reading Attitude Inventory and on the Reading Skill Attitude Inventory by Treatment Group and by Previous Achievement Level for Unit D

Previous Achievement Level	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
High								
Reading Attitude	6.833	5.269	7.667	4.546	4.333	5.164	6.278	4.921
Skill Attitude	7.500	1.378	8.000	1.673	6.500	2.588	7.333	1.940
	N6		N6		N6		N18	
Medium								
Reading Attitude	6.200	7.430	5.667	6.283	5.167	6.432	5.647	6.264
Skill Attitude	8.000	1.000	5.333	3.077	6.333	2.805	6.470	2.625
	N5		N6		N6		N17	
Low								
Reading Attitude	3.60	3.782	5.333	3.386	2.333	2.503	3.765	3.289
Skill Attitude	7.00	2.916	6.667	3.011	6.167	2.787	6.588	2.740
	N5		N6		N6		N17	
All								
Reading Attitude	5.625	5.464	6.222	4.710	3.944	4.832	5.250	4.994
Skill Attitude	7.500	1.826	6.667	2.744	6.333	2.567	6.808	2.434
	N16		N18		N18		N52	

Experimenter-Developed Achievement Tests

A univariate analysis of variance test was carried out on the scores of the reading skill achievement test developed by the experimenter. The results of this analysis are presented in Table 6.

The analysis showed that treatment differences were not significant; neither goal-setting versus non-goal-setting nor conference versus control comparisons approached the .05 level of significance.

The effect of sex was not significant, and as can be seen in Table 7, the means for males and females are virtually identical. Unlike the analysis of the attitude scores, there was no significant difference in score as a function of treatment by sex. Neither the goal-setting versus non-goal-setting by sex nor the conference versus control by sex comparisons approached the .05 level of significance.

The analysis of variance indicated that the difference in achievement score by previous achievement groups was significant at the .01 level. The means and standard deviations for each achievement level group are given in Table 8 with the means plotted in Figure 3. It can be noted that scores on the experimenter test decreased as achievement level decreased.

Although there was a significant difference by previous achievement level the analysis revealed no significant differences as a function of treatment by achievement level within sex. No significant interactions were found in the comparison of goal-setting versus non-goal-setting or conference versus control in either males or females.

Criterion Referenced Test

A univariate analysis of variance was carried out using the scores

TABLE 6

Univariate Analysis of Variance of Scores
on the Experimenter-Developed Synonym and Antonym
Achievement Test for Unit D

Source	df	F	p <
Treatment			
Goal-Setting (G) vs. Non-Goal-Setting ($\bar{G}$)	1, 34	1.4281	.2404
Conference (C) vs. Control ($\bar{C}$)	1, 34	<1	.5489
Sex	1, 34	<1	.7229
Treatment by Sex			
G vs. $\bar{G}$	1, 34	1.3827	.2479
C vs. $\bar{C}$	1, 34	<1	.7024
Previous Achievement Level within Sex	4, 34	6.5417	.0006**
Treatment by Achievement within Sex			
Treatment by Achievement within Males			
G vs. $\bar{G}$	2, 34	<1	.7789
C vs. $\bar{C}$	2, 34	<1	.9761
Treatment by Achievement within Females			
G vs. $\bar{G}$	2, 34	2,5596	.0922
C vs. $\bar{C}$	2, 34	<1	.5170

** Significant at the .01 level

TABLE 7

Mean Scores on the Experimenter-Developed Synonym and Antonym Test by Treatment Group and by Sex for Unit D

Sex	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
Male	29.714 N7	2.138	29.444 N9	3.046	29.222 N9	2.279	29.440 N25	2.451
Female	28.222 N9	5.911	30.778 N9	4.410	29.778 N9	2.048	29.592 N27	4.379
All	28.875 N16	4.588	30.111 N18	3.740	29.500 N18	2.121	29.519 N52	3.551

TABLE 6

Univariate Analysis of Variance of Scores
on the Experimenter-Developed Synonym and Antonym
Achievement Test for Unit D

Source	df	F	p <
Treatment			
Goal-Setting (G) vs. Non-Goal-Setting ($\bar{G}$)	1, 34	1.4281	.2404
Conference (C) vs. Control ($\bar{C}$)	1, 34	<1	.5489
Sex	1, 34	<1	.7229
Treatment by Sex			
G vs. $\bar{G}$	1, 34	1.3827	.2479
C vs. $\bar{C}$	1, 34	<1	.7024
Previous Achievement Level within Sex	4, 34	6.5417	.0006**
Treatment by Achievement within Sex			
Treatment by Achievement within Males			
G vs. $\bar{G}$	2, 34	<1	.7789
C vs. $\bar{C}$	2, 34	<1	.9761
Treatment by Achievement within Females			
G vs. $\bar{G}$	2, 34	2,5596	.0922
C vs. $\bar{C}$	2, 34	<1	.5170

** Significant at the .01 level

TABLE 7

Mean Scores on the Experimenter-Developed Synonym and Antonym Test by Treatment Group and by Sex for Unit D

Sex	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
Male	29.714 N7	2.138	29.444 N9	3.046	29.222 N9	2.279	29.440 N25	2.451
Female	28.222 N9	5.911	30.778 N9	4.410	29.778 N9	2.048	29.592 N27	4.379
All	28.875 N16	4.588	30.111 N18	3.740	29.500 N18	2.121	29.519 N52	3.551

TABLE 8

Mean Scores on the Experimenter-Developed Synonym and Antonym Test by Treatment Group and by Previous Achievement Level for Unit D

Reading Achievement Level	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
High	31.667 N6	1.751	33.000 N6	1.789	31.000 N6	1.265	31.889 N18	1.745
Medium	29.600 N5	2.074	29.667 N6	2.944	29.833 N6	1.169	29.706 N17	2.054
Low	24.800 N5	6.140	27.667 N6	4.274	27.667 N6	2.338	26.823 N17	4.319
All	28.875 N16	4.588	30.111 N18	3.740	29.500 N18	2.121	29.519 N52	3.551

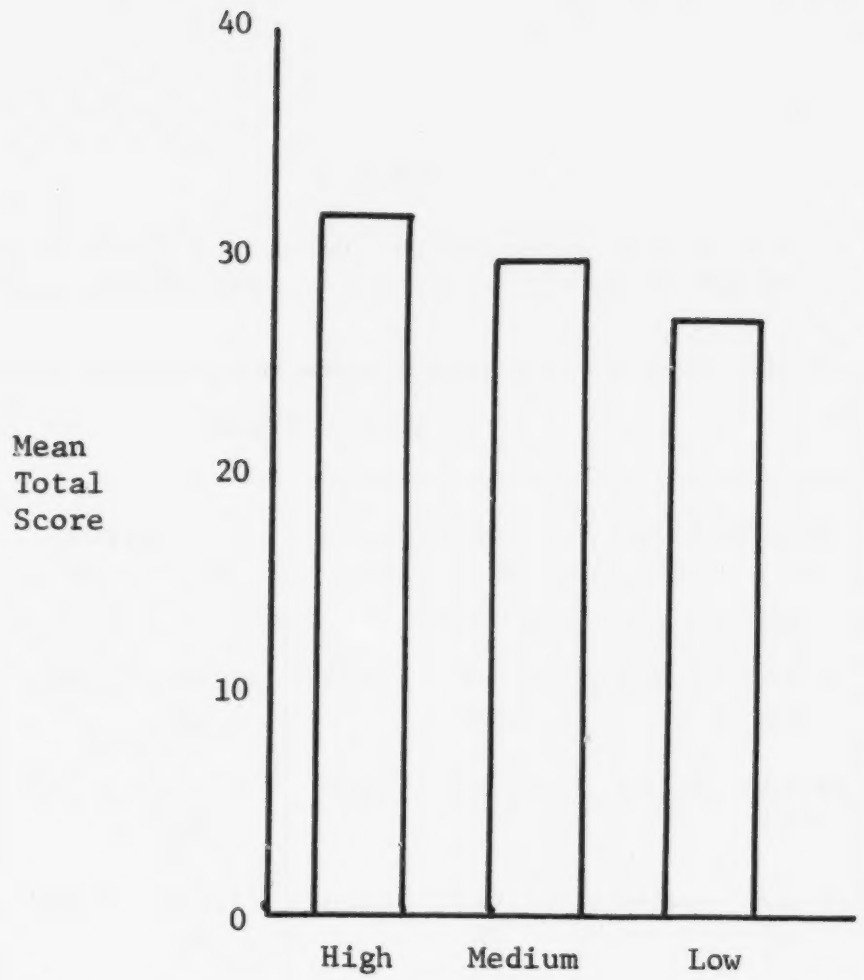

Figure 3. Mean scores on the experimenter-developed Synonym and Antonym Test by previous achievement level for Unit D

of the Level D Synonym and Antonym subtest of the WTRSD Battery as the dependent variable. Results of this analysis appear in Table 9.

The analysis of variance again showed treatment differences to be non-significant; neither goal-setting versus non-goal-setting nor conference versus control comparisons approached the .05 level of significance. An examination of the treatment means presented in Table 10 show them to be virtually identical.

No significant difference in test score was obtained on the basis of sex. Means and standard deviations for test scores by sex are shown in Table 10. There was also no significant difference in score as a function of treatment by sex. Neither the goal-setting versus non-goal-setting by sex nor the conference versus control by sex comparisons reached the desired level of significance.

The only significant difference in scores revealed by the univariate analysis of variance was the comparison of scores on the basis of previous achievement levels. The scores, as presented in Table 11 and plotted in Figure 4, are significantly different at the .01 level. Again the mean scores decrease as ability level decreases.

The examination of treatment by previous achievement in sex also revealed non-significant differences. No significant differences were found in either the goal-setting versus non-goal-setting or the conference versus control comparisons by previous achievement for either males or females.

Goal-Setting Behavior

In analyzing the goal-setting behavior of the students in the study, three behaviors were used as dependent measures: the number of goals set;

TABLE 9

Univariate Analysis of Variance of Scores
on the Synonym and Antonym Subtest of the WTRSD Battery
for Unit D

Source	df	F	p <
Treatment			
Goal-Setting (G) vs. Non-Goal-Setting ($\bar{G}$)	1, 34	<1	.8871
Conference (C) vs. Control ($\bar{C}$)	1, 34	<1	.6126
Sex	1, 34	<1	.8293
Treatment by Sex			
G vs. $\bar{G}$	1, 34	<1	.4294
C vs. $\bar{C}$	1, 34	1.9244	.1744
Previous Achievement Level within Sex	4, 34	4.8046	.0036**
Treatment by Achievement within Sex			
Treatment by Achievement within Males			
G vs. $\bar{G}$	2, 34	2.3569	.1101
C vs. $\bar{C}$	2, 34	<1	.4532
Treatment by Achievement within Females			
G vs. $\bar{G}$	4, 66	<1	.4574
C vs. $\bar{C}$	4, 66	<1	.8881

** Significant at the .01 level

TABLE 10

Mean Scores on the Synonym and Antonym Subtest
of the WTRSD Battery by Treatment Group and Sex for Unit D

Sex	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
Male	12.286 N7	3.[illegible]9	10.667 N9	2.062	12.111 N9	1.833	11.640 N25	2.325
Female	11.444 N9	4.004	12.222 N9	2.386	11.556 N9	2.404	11.741 N27	2.930
All	11.813 N16	3.526	11.444 N18	2.307	11.833 N18	2.093	11.692 N52	2.631

TABLE 11

Mean scores of the Synonym and Antonym Subtest of the WTRSD Battery by Treatment Group and by Previous Level of Achievement for Unit D

Reading Achievement Level	Treatment Group							
	Goal-Setting MN	SD	Conference MN	SD	Control MN	SD	All MN	SD
High	14.333 N6	1.211	11.833 N6	2.041	13.167 N6	1.722	13.111 N18	1.906
Medium	12.600 N5	2.702	11.333 N6	2.658	11.667 N6	2.658	11.824 N17	2.555
Low	8.000 N5	3.000	11.167 N6	2.563	10.667 N6	1.033	10.059 N17	2.561
All	11.813 N16	3.526	11.444 N18	2.307	11.833 N18	2.093	11.692 N52	2.631

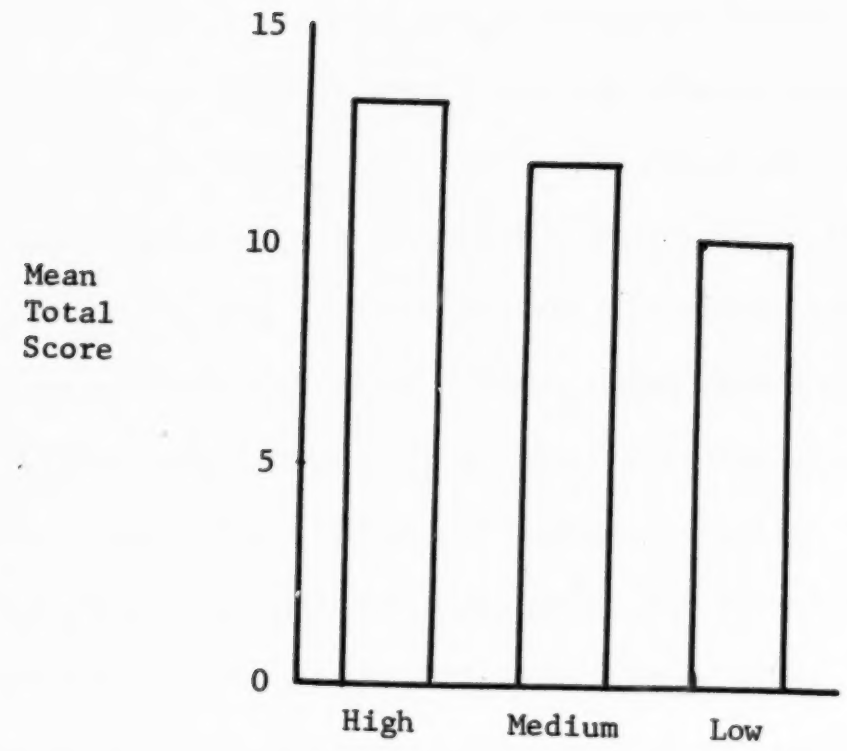

Figure 4. Mean scores on the Synonym and Antonym Subtest of the WTRSD Battery by previous achievement level for Unit D

the absolute difference between the number of goals set and the number of goals achieved; and the confidence subjects displayed in their ability to attain their stated goals.

An examination of the multivariate analysis of variance table (Table 12) reveals that the only significant differences in goal-setting behavior appear as a function of the comparison of the goal-setting versus non-goal-setting treatments. The significance of the differences between the two groups reaches the .01 level. When the scores of the treatment groups are plotted (Figure 5) for each of the goal-setting behaviors considered, a very interesting relationship is readily apparent. The goal-setting treatment group on the average set fewer goals, had a smaller difference between the number of goals set and the number of goals attained, and also displayed less confidence in their ability to attain the goals they had set. Given that the goal-setting Ss set fewer goals and that they achieved at approximately the same level as the other treatment groups, the finding that they showed a smaller difference between goals set and attained is not unexpected. With respect to the number of goals set and confidence in attaining these goals, an examination of the Goal-Setting Check List (Appendix A) and the Goal-Setting Confidence Rating Scale (Appendix D) suggests that the average number of goals set and the average confidence score for the goal-setting Ss represents a more reasonable estimate of their abilities rather than simply indicating "lower scores." In both cases the "scores" would be consistent with the realization that not all possible goals can be achieved or ought to be chosen and that some help will probably be required in order for them to master a given skill.

TABLE 12

Multivariate Analysis of Variance
of Goal-Setting Behavior for Unit D

Source	df	F	p <
Treatment			
Goal-Setting (G) vs. Non-Goal-Setting ($\bar{G}$)	3, 32	7.4103	.0007**
Conference (C) vs. Control ($\bar{C}$)	3, 32	1.1668	.3377
Sex	3, 32	2.2739	.0989
Treatment by Sex			
G vs. $\bar{G}$	3, 32	<1	.7499
C vs. $\bar{C}$	3, 32	<1	.8642
Previous Achievement Level within Sex	12, 84.9	1.6373	.0965
Treatment by Achievement within Sex			
Treatment by Achievement within Males			
G vs. $\bar{G}$	6, 64	<1	.6868
C vs. $\bar{C}$	6, 64	1.0569	.3977
Treatment by Achievement within Females			
G vs. $\bar{G}$	6, 64	<1	.6184
C vs. $\bar{C}$	6, 64	1.3514	.2480

** Significant at the .01 level

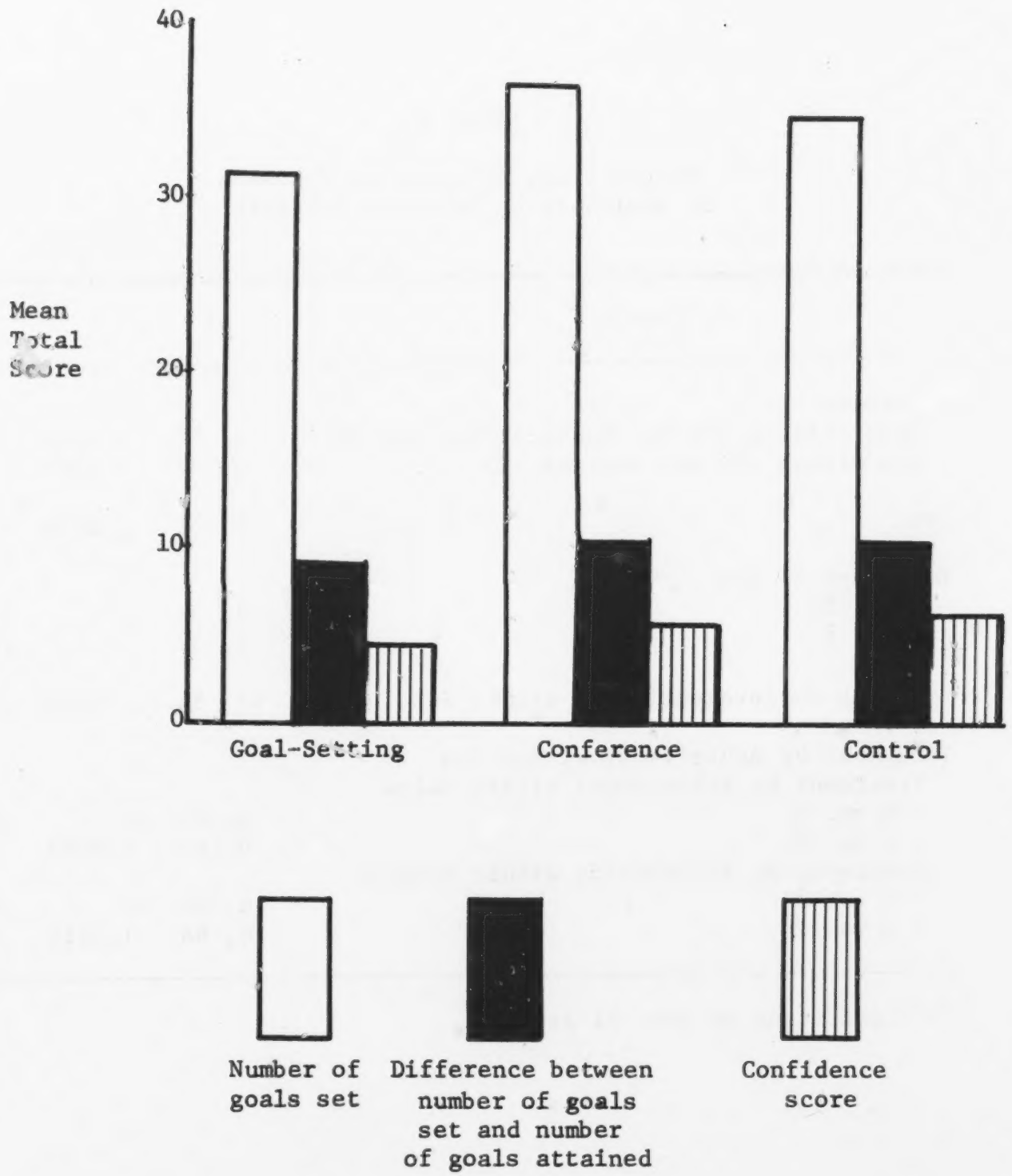

Figure 5. Mean number of goals set, mean difference between the number of goals set and goals attained, and mean confidence score by treatment group for Unit D.

[Although the mean for the goal-setting group is below the means for the other treatment groups on all three of the variables considered, an inspection of the univariate Fs suggests that the number of goals set and the confidence level are the primary measures contributing to the overall significance. Although this procedure is not exact with respect to controlling overall Type I error probabilities, it has been recently shown (Hummel, 1969) that there is a close correspondence in terms of Type I error probability between this approach and the appropriate Roy-Bose post hoc technique.]

A further examination of Table 12 indicates that goal-setting behavior did not differ significantly by sex and that there was also no difference as a function of treatment by sex. The means and standard deviations by sex are given in Table 13.

The differences by achievement groups are shown in Table 14 and are not significant. Although the high achievement group displayed a smaller absolute difference between goals set and attained, goal-setting behavior, as reflected by the joint multivariate test of all three variables, was not related to previous achievement level.

The comparison of treatment by achievement level in sex also revealed non-significant differences. No significant differences were found in either the goal-setting versus non-goal-setting or the conference versus control comparisons for either males or females.

Summary of Unit D Results

The effect of the treatment in Unit D is apparent only in relation to goal-setting behavior. No significant differences were found between treatment groups on the attitude measures, the experimenter-developed achievement test, or the criterion-referenced test.

TABLE 13

Mean Number of Goals Set, Difference Between Number of Goals Set and Attained, and Confidence Score by Treatment Group and Sex for Unit D

Sex	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
Male								
Number of Goals Set	29.571	4.198	36.778	4.631	34.111	6.547	33.800	5.867
Difference	9.571	6.451	11.556	6.821	10.333	4.770	10.560	5.846
Confidence	4.714	1.704	6.111	1.054	6.333	1.118	5.800	1.414
	N7		N9		N9		N25	
Female								
Number of Goals Set	32.667	7.053	36.000	6.233	34.667	3.969	34.444	5.970
Difference	8.333	8.062	9.222	6.300	10.222	6.778	9.259	6.853
Confidence	4.000	1.414	4.889	1.167	5.778	0.833	4.889	1.340
			N9		N9		N27	
All								
Number of Goals Set	31.313	6.008	36.389	5.564	34.389	5.260	34.135	5.871
Difference	8.875	7.191	10.389	6.482	10.278	5.686	9.885	6.361
Confidence	4.313	1.5370	5.550	1.249	6.056	0.998	5.327	1.438
	N16		N18		N18		N52	

TABLE 14

Mean Number of Goals Set, Difference Between Number of Goals Set and Attained, and Confidence Score by Treatment Group and by Previous Achievement Level for Unit D

Previous Achievement Level	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
High								
Number of Goals Set	32.000	4.604	34.333	8.335	36.167	3.125	34.167	5.711
Difference	4.000	4.980	6.333	3.983	9.333	6.250	6.556	5.338
Confidence	3.667	1.751	6.000	6.325	6.333	1.033	5.333	1.680
	N6		N6		N6		N18	
Medium								
Number of Goals Set	32.800	5.263	37.333	4.457	34.833	5.742	35.117	5.195
Difference	12.200	6.140	9.000	5.692	10.333	4.926	10.412	5.374
Confidence	4.200	1.304	4.500	8.367	5.667	0.817	4.824	1.131
	N5		N6		N6		N17	
Low								
Number of Goals Set	29.000	8.426	37.500	2.881	32.167	6.432	33.118	6.791
Difference	11.400	8.234	15.833	6.080	11.167	6.676	12.882	6.891
Confidence	5.200	1.304	6.000	1.549	6.167	1.169	5.824	1.334
	N5		N6		N6		N17	
All								
Number of Goals Set	31.313	6.008	36.389	5.564	34.389	5.260	34.135	5.871
Difference	8.875	7.191	10.389	6.482	10.278	5.686	9.885	6.361
Confidence	4.313	1.537	5.550	1.249	6.056	0.998	5.327	1.438
	N16		N18		N18		N52	

There can be no question that the goal-setting conference procedures had an effect on the ability of the students to set meaningful goals and on their ability to establish reasonable confidence levels in relation to their goals.

In examining the results obtained in Unit D, it was decided that a slight change in emphasis during the goal-setting conferences might prove beneficial in terms of improving achievement levels. With this in mind, in Unit B more emphasis was placed on providing feedback to the student in relation to his mastery of the reading skill. As mentioned above, this represented only a slight change in emphasis at most and did not alter the conference format.

Unit B

Attitude Measures

A multivariate analysis of variance was carried out using scores on the Primary Pupil Reading Attitude Inventory and scores on the Reading Skill Attitude Inventory as dependent variables. Results of this analysis appear in Table 15.

An examination of Table 15 indicates that there were no significant differences in attitude as a function of treatment effect. Neither goal-setting versus non-goal-setting nor conference versus control comparisons approached the .05 level of significance. When the means of the treatment groups are plotted (Figure 6) it can be seen that there is virtually no difference between the scores for the three groups on the attitude measures.

The analysis showed no significant differences in attitude by sex. Neither the goal-setting versus non-goal-setting nor the conference

TABLE 15

Multivariate Analysis of Variance of Scores
on the Attitude Measures for Unit B

Source	df	F	p <
Treatment			
Goal-Setting (G) vs. Non-Goal-Setting ($\bar{G}$)	2, 32	<1	.7619
Conference (C) vs. Control ($\bar{C}$)	2, 32	1.5571	.2264
Sex	2, 32	2.2173	.1254
Treatment by Sex			
G vs. $\bar{G}$	2, 32	<1	.5349
C vs. $\bar{C}$	2, 32	<1	.5788
Previous Achievement Level within Sex	8, 64	<1	.6920
Treatment by Achievement within Sex			
Treatment by Achievement within Males			
G vs. $\bar{G}$	4, 64	1.0767	.3755
C vs. $\bar{C}$	4, 64	<1	.6019
Treatment by Achievement within Females			
G vs. $\bar{G}$	4, 64	1.1873	.3249
C vs. $\bar{C}$	4, 64	1.4115	.2403

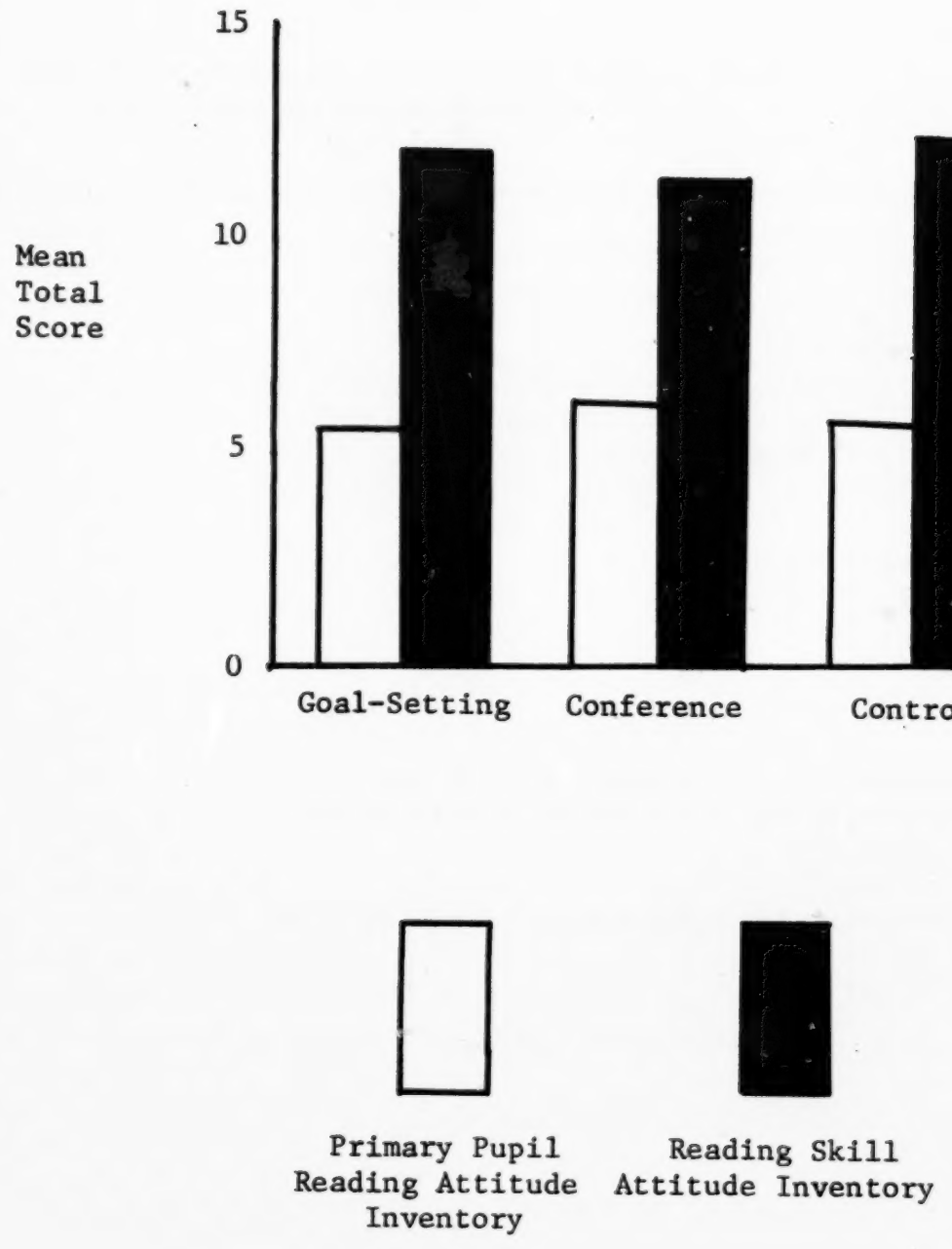

Figure 6. Mean score on the Primary Pupil Reading Inventory and on the Reading Skill Attitude Inventory by treatment group for Unit B

versus control comparisons by sex were significant. The means and standard deviations for the attitude measures by sex appear in Table 16.

No significant differences were found on the attitude measures when contrasts were made by achievement groups. The means and standard deviations for these comparisons are shown in Table 17. Just as there were no significant differences by achievement level, there were no significant differences in the treatment by achievement in sex comparisons. That is, there were no differences in the comparisons of goal-setting versus non-goal-setting or conference versus control for either males or females.

Experimenter-Developed Achievement Tests

A multivariate analysis of variance test was carried out on the scores of the experimenter-developed Base Words and Endings Test and Compound Words Test. The results of this analysis are presented in Table 18.

An examination of the analysis showed the treatment differences to be non-significant; neither the goal-setting versus non-goal-setting nor the conference versus control comparisons reached the .05 level of significance. However, when the means are plotted for both experimenter tests by treatment groups (see Figure 7), it may be seen that the mean score for the goal-setting group was higher on both tests than either the conference or the control groups. An examination of the univariate *F*'s for the goal-setting versus non-goal-setting comparison reflects this directional difference in the means. These differences were not significant for either test separately but reached the .15 level for the compound words test and .10 for the base words test.

TABLE 16

Mean Scores on the Primary Pupil Reading Attitude Inventory
and on the Reading Skill Attitude Inventory
by Treatment Group and by Sex for Unit B

Sex	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
Male								
Reading Attitude	4.000	3.830	5.000	2.726	5.556	2.877	4.917	3.063
Skill Attitude	11.286	2.138	10.750	2.188	12.333	1.118	11.500	1.888
	N7		N8		N9		N24	
Female								
Reading Attitude	6.667	3.674	7.000	2.646	5.889	2.522	6.519	2.914
Skill Attitude	12.556	1.014	11.889	1.764	12.111	0.928	12.185	1.272
	N9		N9		N9		N27	
All								
Reading Attitude	5.500	3.864	6.058	2.794	5.722	2.630	5.765	3.063
Skill Attitude	12.000	1.673	11.353	1.998	12.222	1.003	11.863	1.613
	N16		N17		N18		N51	

TABLE 17

Mean Scores on the Primary Pupil Reading Attitude Inventory
and on the Reading Skill Attitude Inventory
by Treatment Group and by Previous Achievement Level for Unit B

Previous Achievement Level	Treatment Group							
	Goal-Setting MN	SD	Conference MN	SD	Control MN	SD	All MN	SD
High								
Reading Attitude	7.500	3.391	7.000	2.121	5.667	2.503	6.706	2.710
Skill Attitude	12.000	2.450	12.600	0.894	12.667	0.816	12.412	1.544
	N6		N5		N6		N17	
Medium								
Reading Attitude	5.600	4.159	4.333	2.338	7.167	1.941	5.706	2.953
Skill Attitude	12.000	1.414	11.000	2.191	12.000	0.894	11.647	1.579
	N5		N6		N6		N17	
Low								
Reading Attitude	3.000	3.240	7.000	3.225	4.333	2.944	4.882	3.389
Skill Attitude	12.000	1.000	10.667	2.251	12.000	1.265	11.529	1.663
	N5		N6		N6		N17	
All								
Reading Attitude	5.500	3.864	6.058	2.794	5.722	2.630	5.765	3.063
Skill Attitude	12.000	1.673	11.353	1.998	12.222	1.003	11.863	1.613
	N16		N17		N18		N51	

TABLE 18

Multivariate Analysis of Variance of Scores
on Experimenter-Developed Base Words
and Compound Words Tests for Unit B

Source	df	F	p <
Treatment			
Goal-Setting (G) vs. Non-Goal-Setting ($\bar{G}$)	2, 32	1.6014	.2174
Conference (C) vs. Control ($\bar{C}$)	2, 32	1.3672	.2694
Sex	2, 32	2.2325	.1238
Treatment by Sex			
G vs. $\bar{G}$	2, 32	2.0427	.1463
C vs. $\bar{C}$	2, 32	<1	.5208
Previous Achievement Level within Sex	8, 64	4.8343	.0002**
Treatment by Achievement within Sex			
Treatment by Achievement within Males			
G vs. $\bar{G}$	4, 64	<1	.9961
C vs. $\bar{C}$	4, 64	<1	.9971
Treatment by Achievement within Females			
G vs. $\bar{G}$	4, 64	<1	.5281
C vs. $\bar{C}$	4, 64	<1	.6654

** Significant at the .01 level

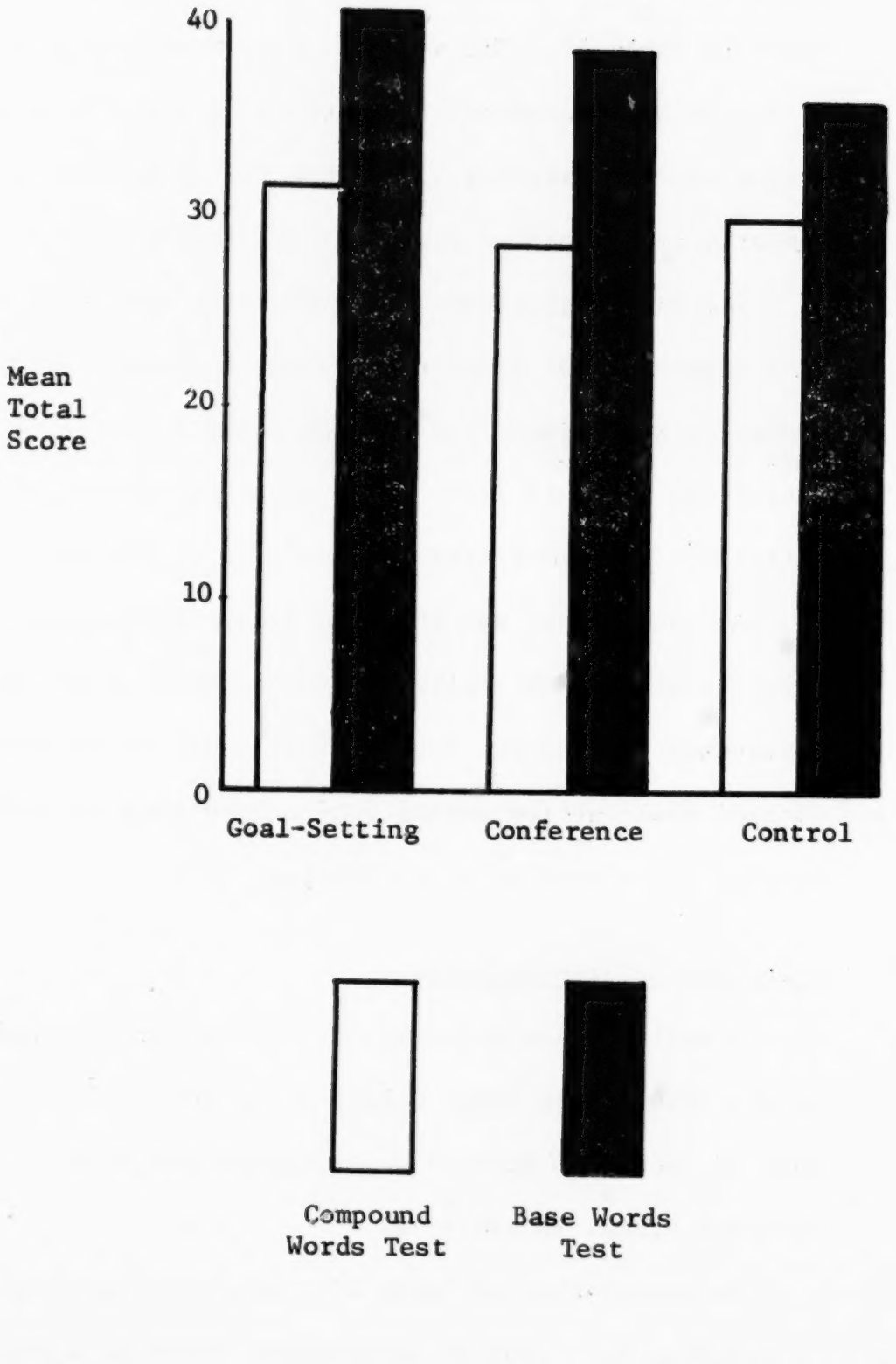

Figure 7. Mean scores on the experimenter-developed Compound Words and Base Words Tests by treatment group for Unit B

No significant differences were found on the basis fo sex. Means and standard deviations by sex on the experimenter-developed tests are found in Table 19. The analysis also showed no significant differences in scores as a function of treatment by sex. Neither the goal-setting versus non-goal-setting by sex nor the conference versus control by sex comparisons approached the level of significance.

The only significant differences in scores on the tests were obtained by a comparison of reading achievement groups. A plotting of the mean scores by achievement level (Figure 8) based on the means and standard deviations given in Table 20 reflects the nature of the significant difference, as the pattern of means is in the expected direction.

Although there was the significant difference by previous achievement, no significant difference as a function of treatment by previous achievement by sex was found. There were no differences in the comparisons of goal-setting versus non-goal-setting or conference versus control for either males or females.

Criterion-Referenced Tests

A multivariate analysis of variance was carried out using the scores on the Level B and Level C Base Words tests and the Level B Compound Words test of the WTRSD Battery as dependent variables. The results of this analysis appear in Table 21.

An examination of Table 21 indicates that there were significant differences ($p < .05$) in achievement score as a function of the treatment. The comparison of the goal-setting treatment group with the non-goal-setting groups showed the scores of the goal-setting Ss to be significantly

TABLE 19

Mean Scores on the Experimenter-Developed Compound Words Test
and on the Base Words and Endings Test
by Treatment Group and Sex for Unit B

Sex	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
Male								
Compound Words	33.143	3.891	27.750	5.523	28.889	5.396	29.750	5.343
Base Words	42.143	5.460	36.125	8.741	32.222	9.230	36.417	8.807
	N7		N8		N9		N24	
Female								
Compound Words	30.111	7.253	30.000	4.610	29.889	5.926	30.000	5.791
Base Words	39.667	6.124	40.444	3.167	39.444	3.909	39.852	4.418
	N9		N9		N9		N27	
All								
Compound Words	31.438	6.044	28.941	5.031	29.389	5.522	29.882	5.531
Base Words	40.750	5.791	38.412	6.587	35.833	7.816	38.235	6.987
	N16		N17		N18		N51	

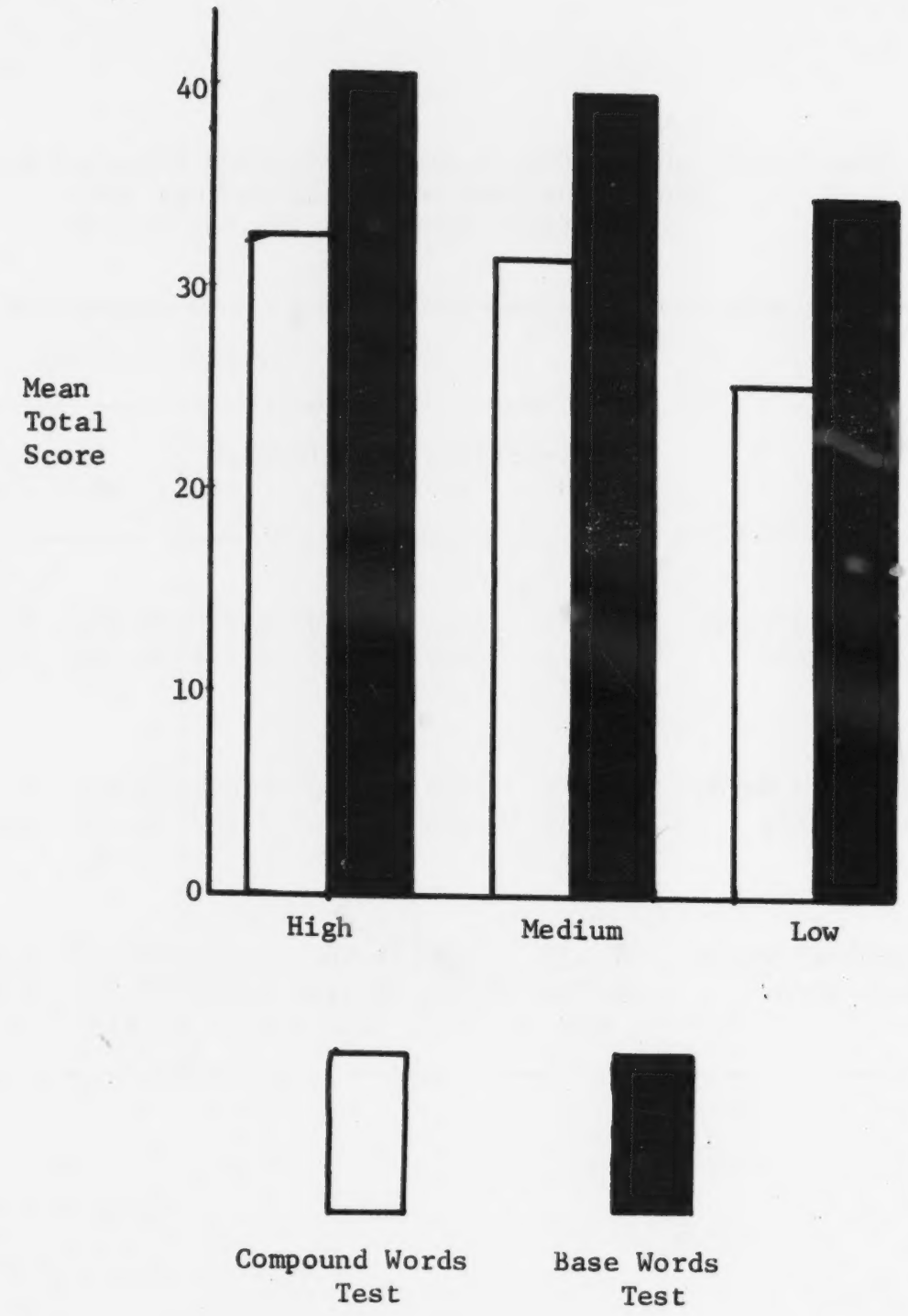

Figure 8. Mean scores on the experimenter-developed Compound Words and Base Words Tests by previous achievement level for Unit B

TABLE 20

Mean Scores on the Experimenter-Developed Compound Words Test
and on the Base Words and Endings Test
by Treatment Group and by Previous Achievement Level for Unit B

Previous Achievement Level	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
High								
Compound Words	35.500	2.168	30.800	3.421	32.667	3.882	33.118	3.604
Base Words	43.833	2.945	39.400	3.507	39.167	8.589	40.882	5.840
	N6		N5		N6		N17	
Medium								
Compound Words	33.800	0.447	30.667	4.502	30.167	5.707	31.412	4.374
Base Words	42.200	3.834	41.167	3.189	36.167	5.914	39.706	5.022
	N5		N6		N6		N17	
Low								
Compound Words	24.200	5.805	25.667	5.610	25.333	4.761	25.118	5.073
Base Words	35.600	7.021	34.833	9.663	32.167	8.329	34.118	8.092
	N5		N6		N6		N17	
All								
Compound Words	31.438	6.044	28.941	5.031	29.389	5.522	29.882	5.531
Base Words	40.750	5.791	38.412	6.587	35.833	7.816	38.235	6.987
	N16		N17		N18		N51	

TABLE 21

Multivariate Analysis of Variance of Scores
on the Levels B and C Base Words Subtests and Level B
Compound Words Subtests of the WTRSD Battery for Unit B

Source	df	F	p <
Treatment			
Goal-Setting (G) vs. Non-Goal-Setting ($\bar{G}$)	3, 31	2.9940	.0458*
Conference (C) vs. Control ($\bar{C}$)	3, 31	2.1740	.1110
Sex	3, 31	<1	.4533
Treatment by Sex			
G vs. $\bar{G}$	3, 31	1.0588	.3807
C vs. $\bar{C}$	3, 31	1.3561	.2744
Previous Achievement Level within Sex	12, 82	2.2758	.0151*
Treatment by Achievement within Sex			
Treatment by Achievement within Males			
G vs. $\bar{G}$	6, 62	1.2829	.2784
C vs. $\bar{C}$	6, 62	<1	.7461
Treatment by Achievement within Females			
G vs. $\bar{G}$	6, 62	<1	.6423
C vs. $\bar{C}$	6, 62	<1	.6146

* Significant at the .05 level

higher. The means for the three treatment groups on each of the measures are plotted in Figure 9. An examination of the univariate F values shows that the differences approached (.06,.06), or were less (.013) than, the .05 level of significance on all achievement measures. This would seem to indicate that the significant overall difference between treatment groups was consistent across measures and not the results of any one measure alone.

No significant differences were obtained as a function of sex or treatment by sex. In neither case did the differences approach the .05 level of significance. The means and standard deviations for achievement by sex and treatment are found in Table 22.

As was true for all other achievement tests used in the study, there was a significant difference in scores by previous achievement. Table 23 shows the means and standard deviations for the achievement level groups on the criterion-referenced achievement measures. This type of difference is to be expected and simply indicates those Ss with high previous achievement perform better than those with low previous achievement.

Although significant differences were found as a function of previous achievement, no significant differences were apparent as a function of the interaction of treatment by previous achievement in sex were found.

Goal-Setting Behavior

In analyzing the goal-setting behavior of the students, the same measures were used as in Unit D: number of goals set; absolute difference between the number of goals set and the number of goals achieved; and the confidence each student had in his ability to attain his stated goal.

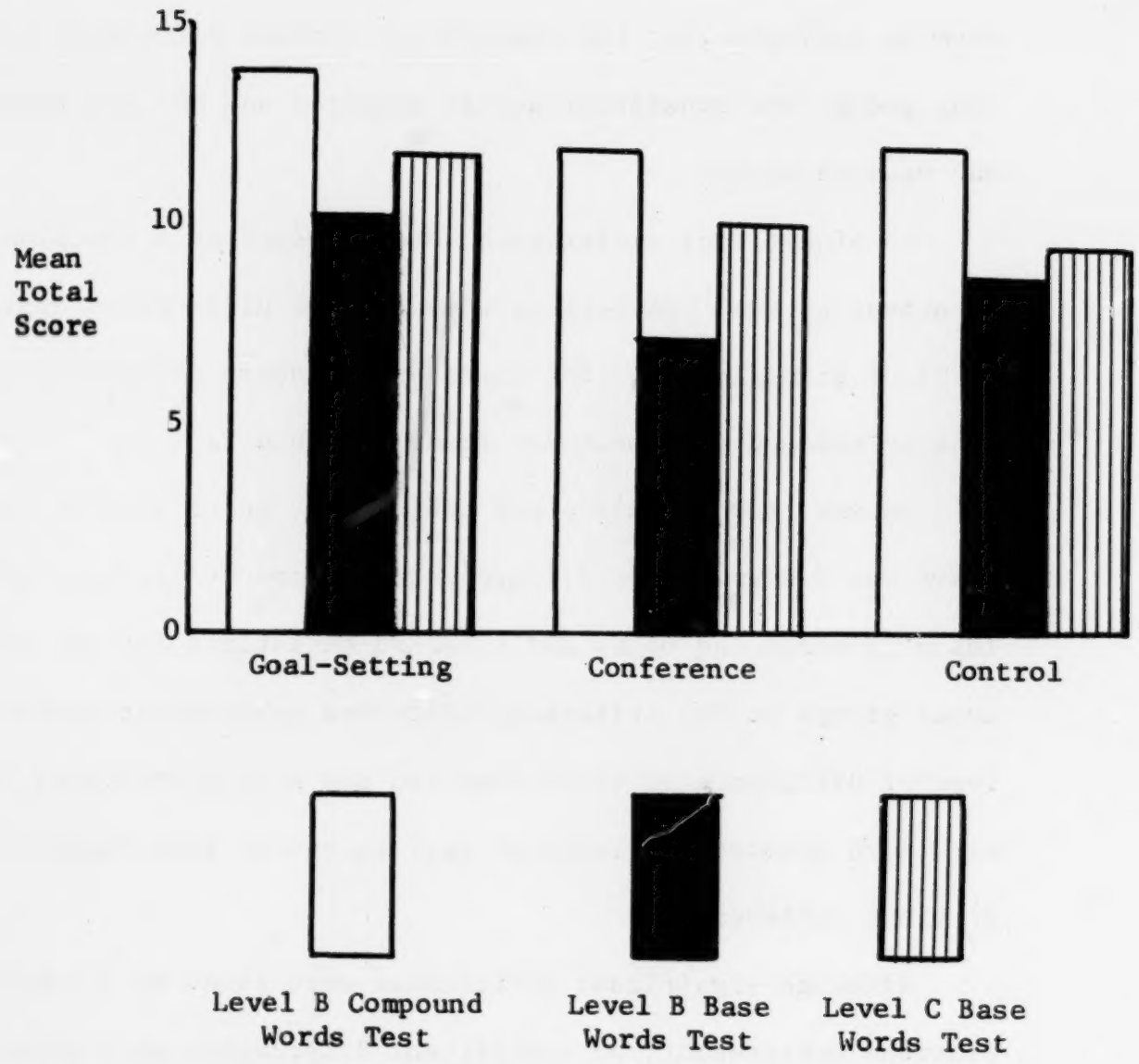

Figure 9. Mean scores on the Level B Compound Words, Level B Base Words, Level C Base Words Subtests of the WTRSD Battery by treatment group for Unit B

TABLE 22

Mean Scores on the Level B Compound Words Subtest
and the Level B and the Level C Base Words Subtest
of the WTRSD Battery by Treatment Group and Sex for Unit B

Sex	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
Male								
B Compound Words	14.143	3.288	10.875	2.642	11.889	3.444	12.208	3.297
B Base Words	10.857	1.865	6.000	3.891	7.556	3.812	8.000	3.811
C Base Words	12.000	2.944	9.500	2.726	10.000	3.640	10.417	3.202
	N7		N8		N9		N24	
Female								
B Compound Words	13.667	2.550	12.889	2.571	12.000	3.937	12.852	3.047
B Base Words	9.556	2.877	8.111	3.060	9.889	2.892	9.185	2.936
C Base Words	11.556	2.506	10.444	2.351	8.667	1.803	10.222	2.470
	N9		N9		N9		N27	
All								
B Compound Words	13.875	2.802	11.941	2.727	11.944	3.589	12.549	3.152
B Base Words	10.125	2.500	7.118	3.534	8.722	3.495	8.628	3.394
C Base Words	11.750	2.620	10.000	2.500	9.333	2.870	10.314	2.812
	N16		N17		N18		N51	

TABLE 23

Mean Scores on the Level B Compound Words Subtest and the Level B and the Level C Base Words Subtest of the WTRSD Battery by Treatment Group and by Previous Achievement Level for Unit B

Previous Achievement Level	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
High								
B Compound Words	15.667	1.752	13.600	1.673	13.667	2.805	14.353	2.262
B Base Words	10.500	3.209	8.000	4.062	9.000	3.688	9.235	3.563
C Base Words	12.667	2.338	11.200	2.588	10.833	2.787	11.588	2.551
	N6		N5		N6		N17	
Medium								
B Compound Words	14.400	2.408	11.667	3.141	12.167	4.370	12.647	3.390
B Base Words	9.800	2.588	6.500	3.391	9.167	4.021	8.412	3.537
C Base Words	13.200	1.643	9.000	2.927	9.500	3.209	10.412	2.938
	N5		N6		N6		N17	
Low								
B Compound Words	11.200	2.387	10.833	2.714	10.000	3.162	10.647	2.668
B Base Words	10.000	1.871	7.000	3.742	8.000	3.286	8.235	3.192
C Base Words	9.200	2.049	10.000	2.828	7.667	1.967	8.941	2.410
	N5		N6		N6		N17	
All								
B Compound Words	13.875	2.802	11.941	2.727	11.944	3.589	12.549	3.152
B Base Words	10.125	2.500	7.118	3.534	8.722	3.495	8.628	3.394
C Base Words	11.750	2.620	10.000	2.500	9.333	2.870	10.314	2.811
	N16		N17		N18		N51	

An examination of the Multivariate Analysis of Variance Table (Table 24) shows that the only significant effect is that of treatment. The goal-setting versus non-goal-setting comparison is significant at the .01 level. When the means for each of the treatment groups on the three goal-setting measures (Figure 10) are examined, the same relationship which was observed in Unit D is apparent: the goal-setting group set fewer goals, had a smaller difference between the number of goals set and achieved, and had a lower confidence score. As was pointed out in the discussion of the results of Unit D, this effect seems to be related to the setting of accurate goals with realistic expectations. An inspection of the univariate F values for each of the three goal-setting measures indicates that the goal-setting effect is not due to a difference on any one measure, but rather is consistent across the three measures. The level of significance less than .01 on two of the measures (.001 for number of goals set and .009 for the difference between number of goals set and achieved) and .05 (.05 on the confidence in attaining goals set) on the other. Although the univariate F can only be employed as an estimate in this case, it does indicate a consistent treatment effect.

A further examination of Table 24 indicates that goal-setting behavior did not differ significantly by sex and that there was also no difference as a function of treatment by sex. The means and standard deviations for these comparisons are found in Table 25.

Table 26 shows the means and standard deviations for the goal-setting measures by previous achievement level. The comparison of the means indicated that there was no significant differences in goal-setting behavior as a function of previous achievement levels.

TABLE 24

Multivariate Analysis of Variance
of Goal-Setting Behavior for Unit B

Source	df	F	p <
Treatment			
Goal-Setting (G) vs. Non-Goal-Setting ($\bar{G}$)	3, 31	5.9376	.0026**
Conference (C) vs. Control ($\bar{C}$)	3, 31	1.2293	.3157
Sex	3, 31	<1	.6032
Treatment by Sex			
G vs. $\bar{G}$	3, 31	<1	.5679
C vs. $\bar{C}$	3, 31	1.0688	.3766
Previous Achievement Level within Sex	12, 82	1.1016	.3702
Treatment by Achievement within Sex			
Treatment by Achievement within Males			
G vs. $\bar{G}$	6, 62	1.5107	.1896
C vs. $\bar{C}$	6, 62	<1	.9454
Treatment by Achievement within Females			
G vs. $\bar{G}$	6, 62	<1	.7485
C vs. $\bar{C}$	6, 62	1.0367	.4105

** Significant at the .01 level

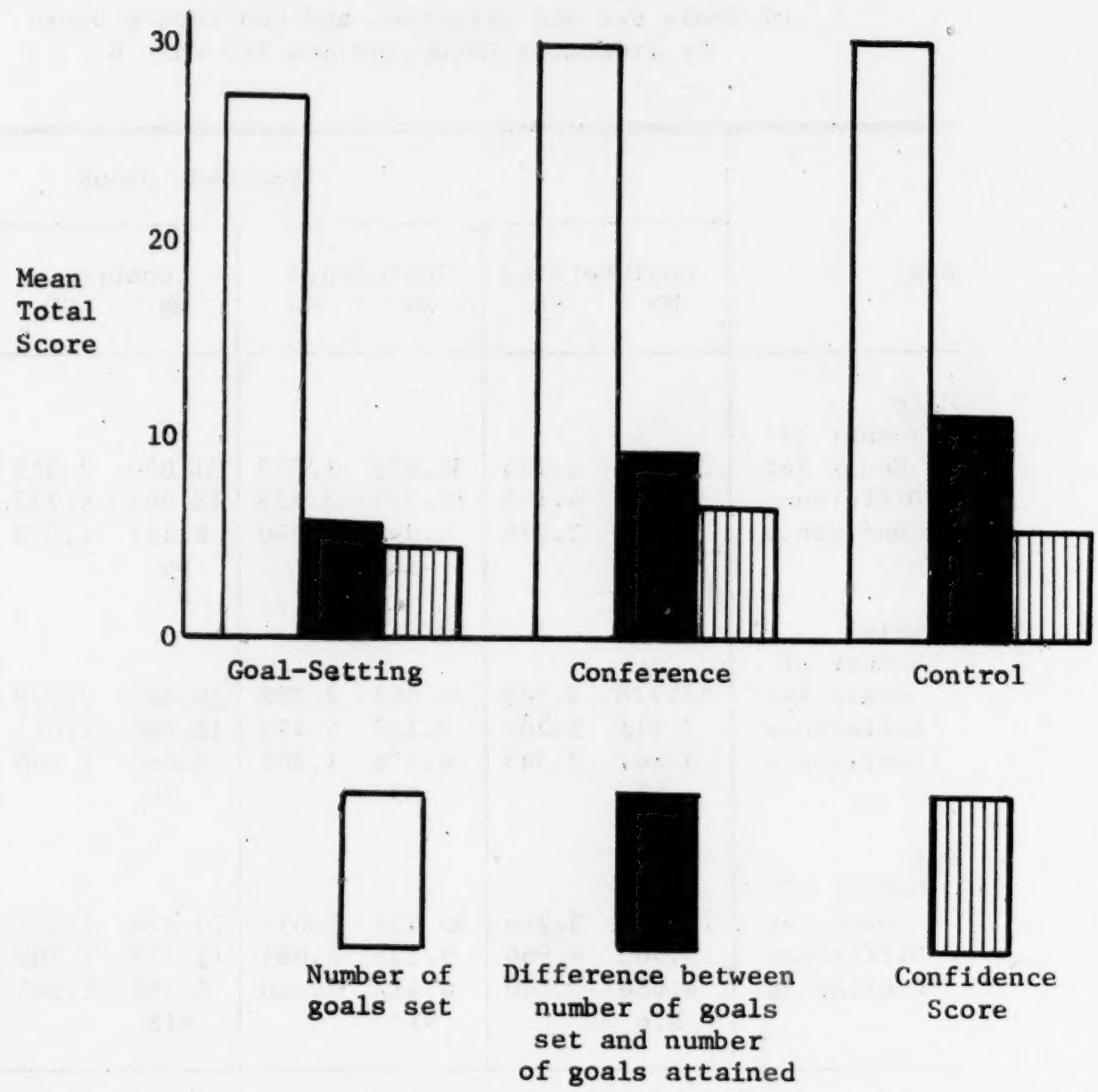

Figure 10. Mean number of goals set, mean difference between the number of goals set and attained and mean confidence score by treatment group for Unit B

TABLE 25

Mean Number of Goals Set, Difference Between Number of Goals Set and Attained, and Confidence Score by Treatment Group and Sex for Unit B

Sex	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
Male								
Number of Goals Set	27.714	1.124	30.875	1.553	31.000	2.345	30.000	2.798
Difference	3.571	4.158	10.375	3.623	10.667	6.727	8.500	5.890
Confidence	4.714	1.976	6.000	1.690	6.111	1.692	5.667	1.810
	N7		N8		N9		N24	
Female								
Number of Goals Set	27.778	3.383	29.667	2.398	29.889	2.078	29.111	2.736
Difference	7.111	5.207	8.222	5.472	11.889	5.011	9.074	5.442
Confidence	4.667	2.345	6.778	1.202	4.667	2.000	5.370	2.097
	N9		N9		N9		N27	
All								
Number of Goals Set	27.750	3.256	30.235	2.078	30.444	2.202	29.529	2.774
Difference	5.563	4.966	9.235	4.684	11.278	5.789	8.804	5.607
Confidence	4.688	2.120	6.412	1.460	5.389	1.945	5.510	1.953
	N16		N17		N18		N51	

TABLE 26

Mean Number of Goals Set, Difference Between Number of Goals Set and Attained, and Confidence Score by Treatment Group and by Previous Achievement Level for Unit B

Previous Achievement Level	Treatment Group							
	Goal-Setting		Conference		Control		All	
	MN	SD	MN	SD	MN	SD	MN	SD
High								
Number of Goals Set	29.667	4.227	31.400	1.949	30.333	3.351	30.412	2.938
Difference	3.833	5.307	8.200	6.140	9.667	5.785	7.177	5.960
Confidence	5.000	2.530	6.600	1.140	5.167	1.722	5.529	1.940
	N6		N5		N6		N17	
Medium								
Number of Goals Set	27.800	1.304	29.833	2.041	31.167	2.563	29.706	2.392
Difference	6.200	2.950	9.000	4.148	11.167	8.134	8.941	5.695
Confidence	4.400	2.510	6.333	0.817	6.500	1.761	5.824	1.912
	N5		N6		N6		N17	
Low								
Number of Goals Set	25.400	1.817	29.667	2.160	29.833	1.941	28.471	2.764
Difference	7.000	6.403	10.333	4.502	13.000	2.757	10.294	5.010
Confidence	4.600	1.517	6.333	2.251	4.500	2.074	5.177	2.069
	N5		N6		N6		N17	
All								
Number of Goals Set	27.750	3.256	30.235	2.078	30.444	2.202	29.529	2.774
Difference	5.563	4.966	9.235	4.684	11.278	5.789	8.804	5.607
Confidence	4.688	2.120	6.412	1.460	5.389	1.945	5.510	1.953
	N16		N17		N18		N51	

The comparison of treatment by previous achievement in sex also revealed non-significant differences. No significant differences were found in either the goal-setting versus non-goal-setting or the conference versus control comparisons for either males or females.

Summary of Unit B

The effect of the goal-setting treatment was apparent in relation to achievement and goal-setting behavior, but did not significantly affect attitude scores.

The effect of goal-setting conferences on achievement resulted in significantly greater achievement by the goal-setting treatment group on the criterion-referenced achievement tests. The goal-setting group also attained higher scores on the experimenter-developed achievement tests, although the difference in this case was not significant.

As in Unit D, the goal-setting procedure significantly influenced goal-setting behavior. The goal-setting group set fewer goals, had a smaller absolute difference between the number of goals set and number of goals attained, and displayed lower confidence scores.